IT'S A BOY! P. 14 • GERALDINE BROOKS ON MARTHA'S VINEYARD P. 23

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FEBRUARY 2009

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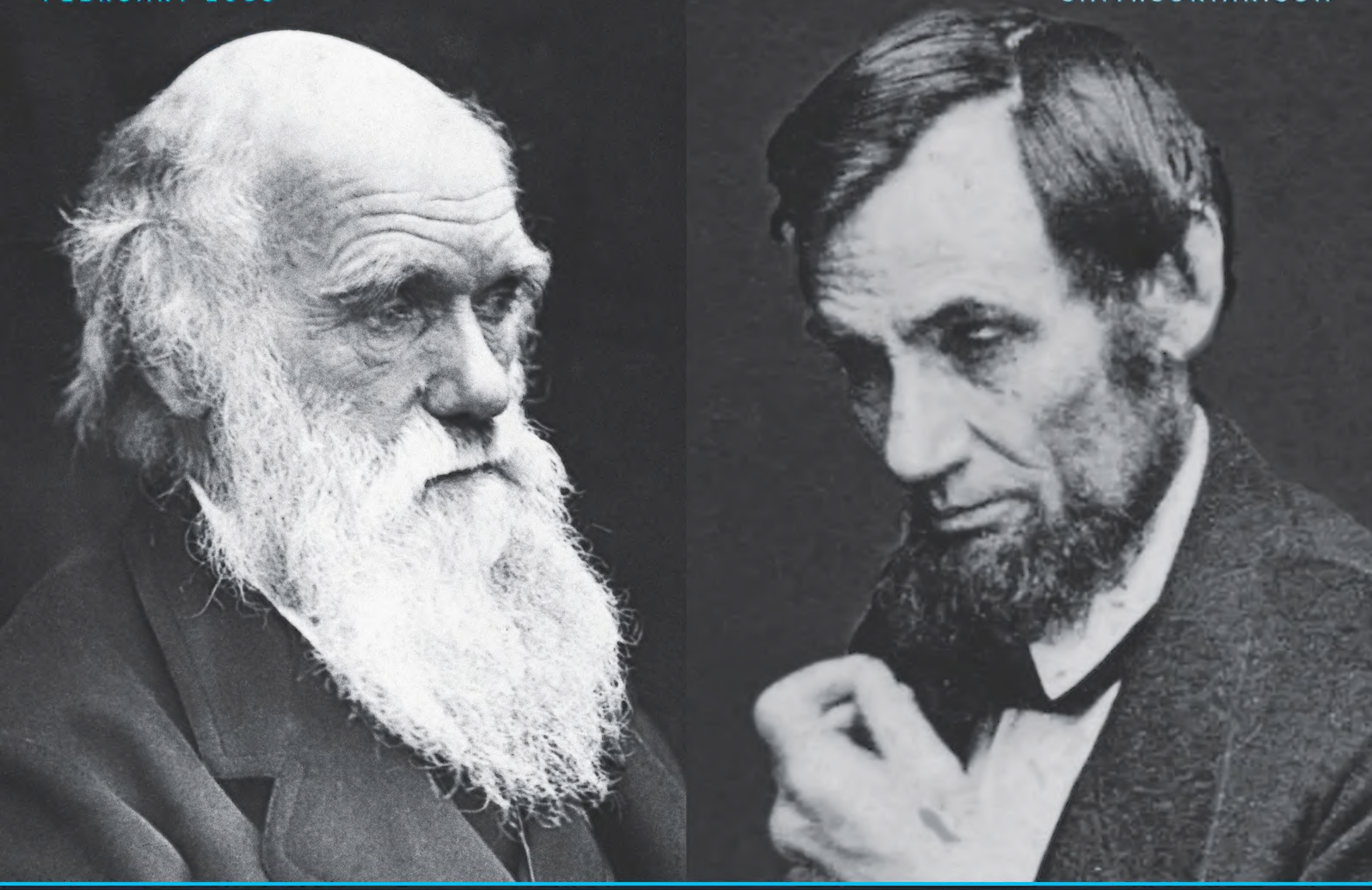

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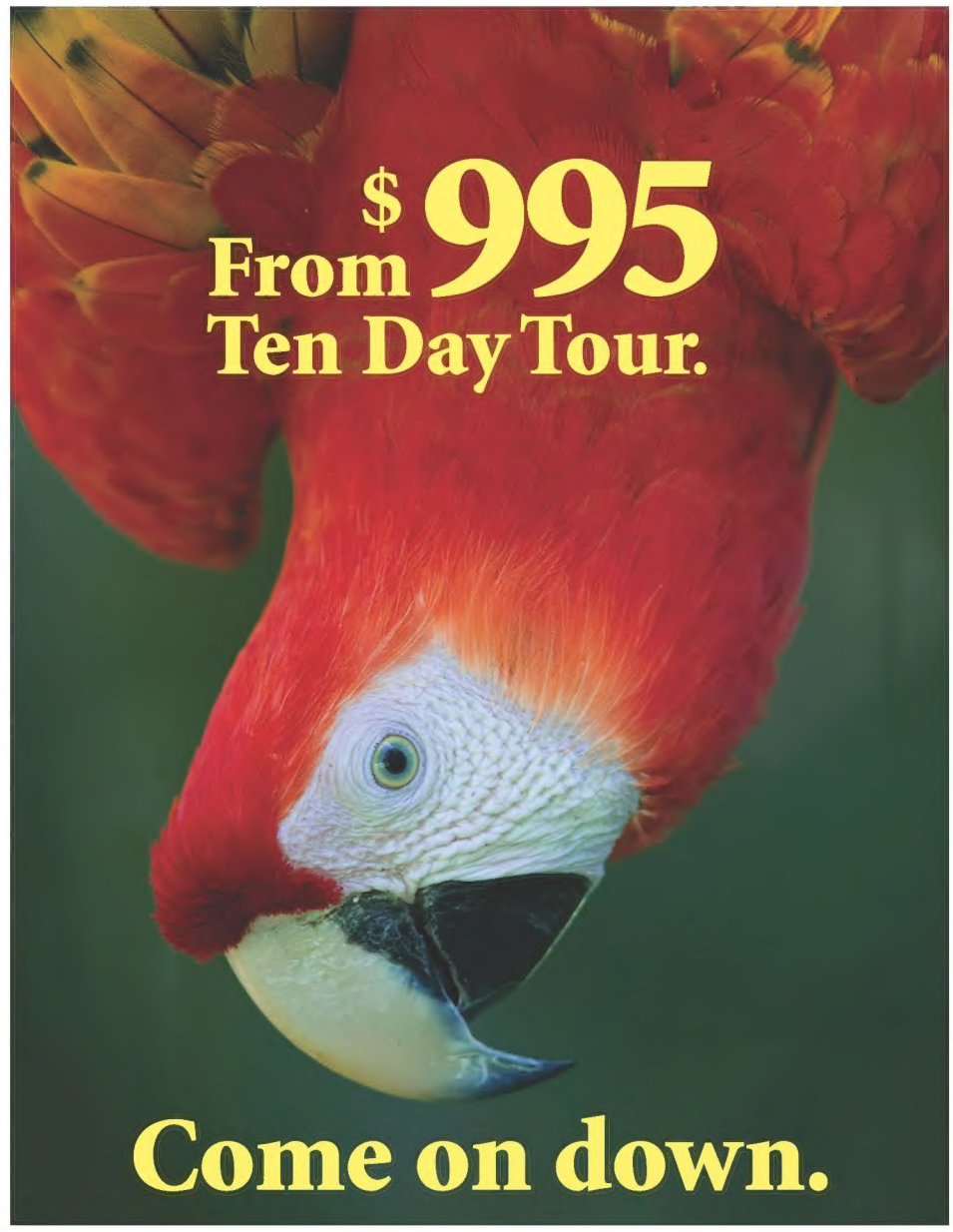

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Smithsonian features

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During the first decade after reintroduction, the wolf populations soared. By 2007, an estimated 1,500 wolves inhabited the northern Rockies.

"HOWLING SUCCESS"
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Maybe you thought Abraham Lincoln was above reproach. But every generation has had a different take on the brooding, brilliant president

BY PHILIP B. KUNHARDT III

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Though scientists today are still discovering new things about evolution in fields unknown to Charles Darwin, his core idea holds up wonderfully

BY THOMAS HAYDEN

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Born on the same day, Darwin and Lincoln would forever influence how people think about the world

BY ADAM GOPNIK ILLUSTRATION BY JOE CIARDIELLO

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In Trinidad, a noted author joins gyrating throngs of masked and painted revelers as they partake in the annual pre-Lenten rite

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Battling gale-force winds and raging seas is all in a day's work for an elite group of ship captains, who steer giant tankers and cargo vessels through the treacherous Columbia River entrance

BY MATT JENKINS PHOTOGRAPHS BY ED KASHI

70 The Freedom Riders

A photographer catches up with brave men and women who traveled the South by bus in 1961, enduring abuse and arrest to end racial segregation

BY MARIAN SMITH HOLMES PORTRAITS BY ERIC ETHERIDGE

76 Howling Success

Reintroduced to Yellowstone National Park in the mid-1990s, the gray wolf has made a remarkable comeback. But not everyone is cheering

BY FRANK CLIFFORD

ON THE COVER **By the time Darwin and Lincoln died, "the shape of history had changed," writes Gopnik.**
1869 DARWIN PHOTO BY JULIA MARGARET CAMERON / BETTMAN / CORBIS; 1862 LINCOLN PHOTO BY MATHEW BRADY / PICTURE HISTORY

THIS PAGE **Wolves (a canine in Yellowstone National Park) have been blamed for killing 2,700 livestock in Montana, Idaho and Wyoming over the past dozen years.** PHOTOGRAPH BY JESS R. LEE

Smithsonian departments

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It is the bangles on the dancer's wrists that catch my eye. I'd seen similar ones days earlier at an archaeological site in northeastern Thailand.

"BODIES OF EVIDENCE"
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Pictures of newborns are everywhere. But one photograph of a boy's birth is so extraordinary it was sent into outer space
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REQUIEM FOR THE REDHEAD

The *Apsara* dance (at the 12th-century Preah Khan Temple in Angkor, Cambodia) may represent a link to a long-lost culture.

PHOTOGRAPH BY MICHAEL FREEMAN

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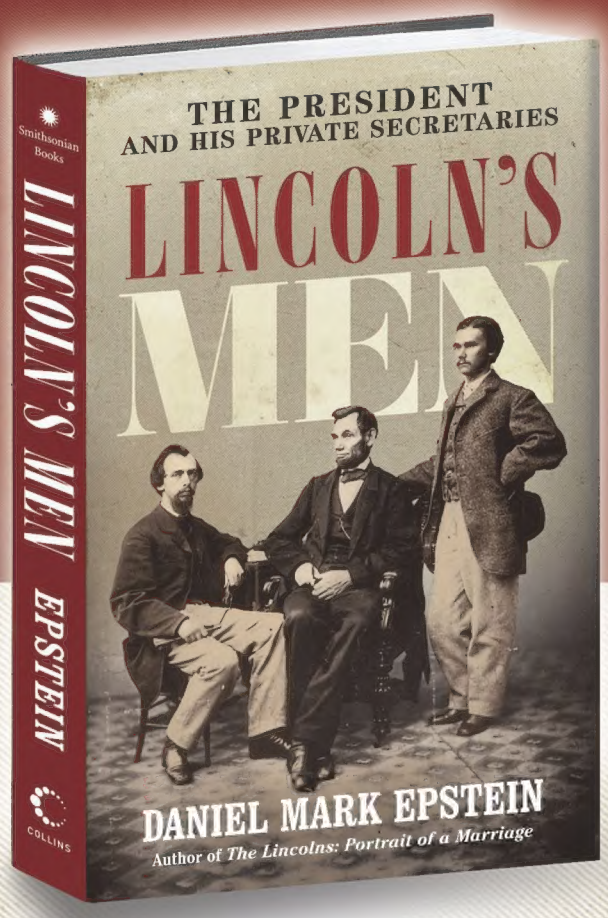

Doris Kearns Goodwin called DANIEL MARK EPSTEIN's last book, *The Lincolns*, **"a splendid addition to the Lincoln literature."** And the *Wall Street Journal* said, **"Epstein has written what may be the best Lincoln book in a generation."** In *Lincoln's Men*, he looks at our 16th president through the unique prism of the three men who worked closest to him during the Civil War—his private secretaries.

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FROM THE EDITOR

Evolution and Equality

What do Darwin, Lincoln and the Freedom Riders have in common? **BY TERENCE MONMANEY**

DESPITE ALL THE HULLABALOO leading up to their shared bicentennial, it still seems incredible that Charles Darwin and Abraham Lincoln, two of the most important and most admirable people of the 19th century, whose deep contributions to their time continue to be felt in ours, were born on the same day, February 12, 1809. Though the English naturalist and the American president were worlds apart in life, there's something to be gained considering them side by side, some sparks of insight generated when their stories rub against each other. Thus our Two Centuries of Genius special feature: the distinguished historian Philip B. Kunhardt III parses the Lincoln mythology ("Lincoln's Contested Legacy," p. 32), Thomas Hayden reports on scientists today working to expand upon Darwin's everlasting breakthrough, evolution by natural selection ("What Darwin Didn't Know," p. 40), and Adam Gopnik looks into what truly made the men unique ("Twin Peaks," p. 50).

Darwin and Lincoln might have had more in common than we thought. Lincoln, of course, was motivated by the cruel injustice of slavery, but recent scholarship suggests that so was Darwin, whose family was staunchly abolitionist. "He was disheartened to see advocates of slavery justifying their position by saying that white European humans and black African humans were not the same species," Hayden says. "One of the animating thoughts in the young Darwin's mind as he set out to understand the world was his conviction that all humans were one."

Holmes: Grateful to Freedom Riders.

BONNIE STUTSKI

The idea of evolution as an equalizing force is worth pursuing, and you may do so at Smithsonian.com, where we have extra content about Lincoln and Darwin, including videos, photographs and stories, such as "Darwin on Lincoln, and Vice Versa." Our blog Surprising Science (Smithsonian.com/science) will debate which one, Darwin or Lincoln, was more important. Silly question? Maybe. But the sparks are illuminating. Please join in.

The fight to achieve racial equality in the United States is the subject of "The Freedom Riders" (p. 70), by associate editor Marian Smith Holmes. It's based on a new book of photographs and interviews, Eric Etheridge's *Breach of Peace*, about some of the men and women who protested segregated bus depots across the South in 1961. Some were beaten; most were jailed, and in shameful conditions.

"I was excited about having the opportunity to talk to some of those people who sat on the buses, who risked their lives, who endured in the dirty jails," Holmes says. "It made me feel very grateful and very humble. There was a feeling that we're all in this together, and I think we need to hang on to that idea, that whatever struggle one group might have, it's actually a struggle for all of us."

Terence Monmaney is the executive editor.

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Issue Extras

DARWIN AND LINCOLN
Discover more about these 19th-century giants and test your knowledge in online quizzes at **Smithsonian.com/Lincoln** and **Smithsonian.com/Darwin**

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CRAIG SWEDLGAARD

LETTERS READERS RESPOND TO THE **DECEMBER** ISSUE

Like his Gettysburg Address ["Beyond Words"], Lincoln's comments on labor also merit attention: "It has so happened in all ages of the world, that *some* have laboured and *others* have, without labour, enjoyed a large proportion of the fruits. This is wrong, and should not continue." **DAN THOMPSON,** UNION, OREGON

LINCOLN SPEAKS

OWEN EDWARDS reports that it "made sense" not to have Lincoln deliver the main oration at Gettysburg because one didn't bother a president in the middle of a war. That wasn't the reason. People bothered Lincoln day and night throughout his presidency. Edward Everett was then considered America's greatest living orator and had always been the choice of the head of the Cemetery Commission, Judge David Wills. Wills was so determined to have Everett that he convinced commissioners to delay the dedication, originally scheduled for October 23, for nearly a month to give Everett sufficient time to prepare. Lincoln was later invited to give the consecration following the main address. He accepted and the rest is history.

MYRA REICHART
DILLSBURG, PENNSYLVANIA

IF A PICTURE is worth a thousand words, it's also sometimes worth a few words of explanation. "Beyond Words" tells us that of the five copies of the Gettysburg Address handwritten by Lincoln, "the only one signed by the president was penned in March 1864." However, the accompanying photograph, identified as "a copy in his handwriting," is clearly signed by Lincoln and dated November 19, 1863 (the date he delivered the wonderful speech at Gettysburg). What gives?

JOE VECCHIONE
JAMESTOWN, RHODE ISLAND

Picture this: The March 1864 copy of the Gettysburg Address that Lincoln wrote by hand is indeed the only one of five known handwritten drafts signed by him; however, he backdated it to November 19, 1863, the date he delivered the speech. —Ed.

TEAMWORK IN ISTANBUL

MAYBE WE SHOULD invoke Solomon to save the ancient Hagia Sophia ["Fading Glory"], which rapidly disintegrates as each of the groups fighting over the monument (secular, Islam and Christian) stubbornly clings to its own vision. If they knew that an earthquake would strike tomorrow and the building would crumble to dust, then they might work together to save the symbol they say is so precious to each of them. What a glorious vision that would be: Hagia Sophia would become a new symbol of cooperation and tolerance among groups that have for so long mistrusted and fought each other.

ANN KREEGER
BELLE PLAINE, MINNESOTA

COMPETITIVE EDGE

PRIOR TO HIS DESIGN of the U.S. Capitol, William Thornton ["Capitol Fellow"] won another competition. As a result, in 1789 he designed Library Hall for Benjamin Franklin's Library Company of Philadelphia. Razed in 1884, the building was reconstructed in the 1950s and today partially houses the American Philosophical Society, founded by Franklin in 1743.

ANDREW A. ZELLERS-FREDERICK
WARMINSTER, PENNSYLVANIA

AMERICAN SUFI

YOUR ARTICLE about Sufism in Pakistan ["Faith & Esctasy"] compelled me to share information about perhaps the leading practitioner in the United States. M.R. Bawa Muhaiyaddeen, a Sufi master, taught from 1971 until his death in 1986. He exuded a depth of love and wisdom that inspired people of all faiths, world and religious leaders included, to become better human beings. He resided in Philadelphia, where his teachings continue at the Bawa Muhaiyaddeen Fellowship.

AMY WILSON
PHILADELPHIA, PENNSYLVANIA

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THIS MONTH IN HISTORY

FEBRUARY ANNIVERSARIES
MOMENTOUS OR MERELY MEMORABLE

BY ALISON McLEAN

90 YEARS AGO
GRAND PLAN

President Woodrow Wilson signs an act making more than a million acres of Arizona's Grand Canyon a national park February 26, 1919. European American pioneers, tourists and prospectors began to stake out the area in the late 1880s, though evidence of human presence in the six million-year-old canyon goes back 12,000 years. Host today to five million people a year, it is the ninth most visited national park.

TOM BEAN / CORBIS; NAVAL HISTORICAL CENTER; CORBIS; UNDERWOOD & UNDERWOOD / CORBIS; COURTESY OF ERIC ORLEMANN

Visit Smithsonian.com/history for "Today in History"

100 YEARS AGO
AND BACK AGAIN

"Let the President press the button and Navy will do the rest any old time," says Rear Adm. Robley Evans at the culmination of a 14-month, 43,000-mile trip around the world by Theodore Roosevelt's "Great White Fleet." The 16 battleships and their escorts (above: in Sydney Harbor), sent as a peacetime show of naval power in the face of increased tension with Japan, return to Virginia February 22, 1909. The cruise, the largest of its kind yet attempted, results in improved U.S.-Japanese relations, better ship design—and a recommendation that Navy ships be painted gray.

60 YEARS AGO ATTENTION PAID

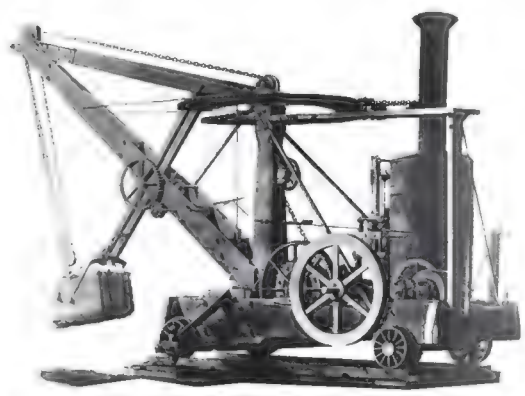
Death of a Salesman, Arthur Miller's drama of smashed illusions, opens on Broadway February 10, 1949, starring Lee J. Cobb (right) as Willy Loman, the failing salesman whose product is himself. Written in just six weeks, the play is praised for Miller's deft use of flashbacks and his honest, sympathetic treatment of Loman's disintegration. "One of the finest dramas in the whole range of American theatre," says the *New York Times*. *Salesman* wins four Tony Awards and the 1949 Pulitzer Prize for drama and propels Miller to the forefront of American letters. He dies in 2005, age 89.

100 YEARS AGO LIFTING EVERY VOICE

Outraged by the 1908 race riots in Springfield, Illinois (see p. 35), an interracial group of social activists (below center: W.E.B. Du Bois) founds the National Association for the Advancement of Colored People (NAACP) on the centennial of Abraham Lincoln's birth, February 12, 1909. Calling for "civil and political liberty" for African-Americans, the association holds conferences, publishes black writers, organizes protests and battles racial injustice in Congress and in court. NAACP challenges lead to, among other victories, the landmark 1954 Supreme Court school desegration decision *Brown v. Board of Education*. Today the group has half a million members in 50 states and abroad.

170 YEARS AGO DIGGING IT

American inventor William Otis, 25, patents the first steam shovel on February 24, 1839. He dies later that year of typhoid. Otis, a contractor, had designed the machine in 1835 (below: an 1841 version) while building a Massachusetts railroad. A steam-powered chain hoist raises and lowers the bucket, which can also be moved from side to side. Immigrant labor keeps hand-shoveling cheap for a time, but by the 1870s steam shovels are a force behind America's westward expansion and mining operations, and, in the early 1900s, the Panama Canal.



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What should I know about treating arthritis pain?

For many with arthritis pain, not treating is not an option. All prescription NSAID pain relievers, like Celebrex, ibuprofen and naproxen, help treat arthritis pain and have some of the same warnings. But since individual results may vary, having options is important.

Why should I consider Celebrex?

Prescription Celebrex has been the option for millions of patients for 10 straight years. Just one 200-mg Celebrex can provide dependable, 24-hour relief for many with arthritis pain, stiffness and inflammation. Based on the available data, the FDA stated that for certain patients Celebrex's benefits outweigh the risks. But only you and your doctor can make that decision.

What if I have a sensitive stomach?

If you are worried about stomach upset, you should know, in clinical studies, a lower percentage of patients taking Celebrex reported stomach discomfort, which includes indigestion, abdominal pain, and nausea, versus prescription ibuprofen and naproxen. However, all prescription NSAIDs, including Celebrex, increase the chance of stomach and intestine problems, such as bleeding and ulcers which can occur without warning and may cause death. With any of these medicines, patients also taking aspirin and the elderly are at increased risk for stomach bleeding and ulcers.

And if I'm taking low-dose aspirin?

If you are taking low-dose aspirin for your heart and need an NSAID pain reliever, Celebrex can be used because it doesn't interfere with the effects of low-dose aspirin. Ask your doctor if your NSAID pain reliever can be taken with low-dose aspirin.

But aren't there cardiovascular risks associated with NSAID use?

The FDA requires all prescription NSAIDs, including Celebrex, ibuprofen, naproxen and meloxicam, to have the same cardiovascular warning. They all may increase the chance of heart attack or stroke, which can lead to death. This chance increases if you have heart disease or risk factors for it such as high blood pressure or when NSAIDs are taken for long periods. Additionally, taking low-dose aspirin may not reduce the cardiovascular risk associated with NSAID use.

Any other precautions?

All prescription NSAIDs, including Celebrex, should be used at the lowest dose possible, for the shortest time, based on your individual treatment goals. Do not take Celebrex if you're pregnant or if you're allergic to aspirin or sulfonamides. All prescription NSAIDs, including Celebrex, increase the chance of serious skin reactions. And tell your doctor if you've had kidney or liver problems.

What should I do next?

Visit celebrex.com or call 1-888-celebrex. Ask your doctor if you could benefit from Celebrex. But most importantly, your doctor can tell you about the risks and benefits of all prescription NSAID pain relievers, including Celebrex.

Please turn page to see important information about Celebrex and other prescription NSAIDs.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

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Medication Guide
for Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

(See the end of this Medication Guide for a list of prescription NSAID medicines.)

What is the most important information I should know about medicines called Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

NSAID medicines may increase the chance of a heart attack or stroke that can lead to death.

This chance increases:

- with longer use of NSAID medicines
- in people who have heart disease

NSAID medicines should never be used right before or after a heart surgery called a "coronary artery bypass graft (CABG)."

NSAID medicines can cause ulcers and bleeding in the stomach and intestines at any time during treatment. Ulcers and bleeding:

- can happen without warning symptoms
- may cause death

The chance of a person getting an ulcer or bleeding increases with:

- taking medicines called "corticosteroids" and "anticoagulants"
- longer use
- smoking
- drinking alcohol
- older age
- having poor health

NSAID medicines should only be used:

- exactly as prescribed
- at the lowest dose possible for your treatment
- for the shortest time needed

What are Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

NSAID medicines are used to treat pain and redness, swelling, and heat (inflammation) from medical conditions such as:

- different types of arthritis
- menstrual cramps and other types of short-term pain

Who should not take a Non-Steroidal Anti-Inflammatory Drug (NSAID)?

Do not take an NSAID medicine:

- if you had an asthma attack, hives, or other allergic reaction with aspirin or any other NSAID medicine
- for pain right before or after heart bypass surgery

Tell your healthcare provider:

- about all of your medical conditions.
- about all of the medicines you take. NSAIDs and some other medicines can interact with each other and cause serious side effects. **Keep a list of your medicines to show to your healthcare provider and pharmacist.**
- if you are pregnant. **NSAID medicines should not be used by pregnant women late in their pregnancy.**
- if you are breastfeeding. **Talk to your doctor.**

What are the possible side effects of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

Serious side effects include:	**Other side effects include:**
• heart attack • stroke • high blood pressure • heart failure from body swelling (fluid retention) • kidney problems including kidney failure • bleeding and ulcers in the stomach and intestine • low red blood cells (anemia) • life-threatening skin reactions • life-threatening allergic reactions • liver problems including liver failure • asthma attacks in people who have asthma	• stomach pain • constipation • diarrhea • gas • heartburn • nausea • vomiting • dizziness

Get emergency help right away if you have any of the following symptoms:

- shortness of breath or trouble breathing
- chest pain
- weakness in one part or side of your body
- slurred speech
- swelling of the face or throat

Stop your NSAID medicine and call your healthcare provider right away if you have any of the following symptoms:

- nausea
- more tired or weaker than usual
- itching
- your skin or eyes look yellow
- stomach pain
- flu-like symptoms
- vomit blood
- there is blood in your bowel movement or it is black and sticky like tar
- skin rash or blisters with fever
- unusual weight gain
- swelling of the arms and legs, hands and feet

These are not all the side effects with NSAID medicines. Talk to your healthcare provider or pharmacist for more information about NSAID medicines.

Other information about Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

- Aspirin is an NSAID medicine but it does not increase the chance of a heart attack. Aspirin can cause bleeding in the brain, stomach, and intestines. Aspirin can also cause ulcers in the stomach and intestines.
- Some of these NSAID medicines are sold in lower doses without a prescription (over-the-counter). Talk to your healthcare provider before using over-the-counter NSAIDs for more than 10 days.

NSAID medicines that need a prescription

Generic Name	Tradename
Celecoxib	Celebrex
Diclofenac	Cataflam, Voltaren, Arthrotec (combined with misoprostol)
Diflunisal	Dolobid
Etodolac	Lodine, Lodine XL
Fenoprofen	Nalfon, Nalfon 200
Flurbiprofen	Ansaid
Ibuprofen	Motrin, Tab-Profen, Vicoprofen* (combined with hydrocodone), Combunox (combined with oxycodone)
Indomethacin	Indocin, Indocin SR, Indo-Lemmon, Indomethagan
Ketoprofen	Oruvail
Ketorolac	Toradol
Mefenamic Acid	Ponstel
Meloxicam	Mobic
Nabumetone	Relafen
Naproxen	Naprosyn, Anaprox, Anaprox DS, EC-Naproxyn, Naprelan, Naprapac (copackaged with lansoprazole)
Oxaprozin	Daypro
Piroxicam	Feldene
Sulindac	Clinoril
Tolmetin	Tolectin, Tolectin DS, Tolectin 600

*Vicoprofen contains the same dose of ibuprofen as over-the-counter (OTC) NSAIDs, and is usually used for less than 10 days to treat pain. The OTC NSAID label warns that long term continuous use may increase the risk of heart attack or stroke.

This Medication Guide has been approved by the U.S. Food and Drug Administration.

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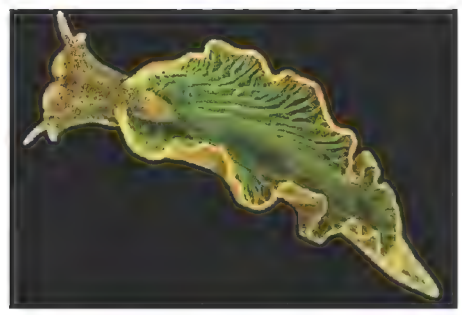
WILD THINGS

LIFE AS WE KNOW IT

BY T. A. FRAIL, MEGAN GAMBINO, LAURA HELMUTH, ABIGAIL TUCKER, SARAH ZIELINSKI

ON THEIR OWN

Five species of Hawaiian birds—all now extinct—looked so much like Asian and Australian birds called honeyeaters that scientists thought they were all in the same family. The birds had curved bills to reach inside flowers and long, brushy tongues to lap up nectar (left: a Hawaii Oo). But a new genetic analysis by Smithsonian scientists of preserved Hawaiian specimens shows that the birds constituted their own family and were unrelated to true honeyeaters. The resemblance was an extreme case of "convergent evolution," in which lineages evolve strikingly similar adaptations—in this case, for feeding from flowers.



GREEN ENERGY

This sea slug looks like a leaf because it contains chlorophyll-rich plant structures called chloroplasts, extracted from algae it eats. Now researchers led by Texas A&M say *Elysia chlorotica* has also acquired from the algae at least one gene necessary for photosynthesis—a first among animals. The slug can photosynthesize on its own for months.

IT'S A BIRD! IT'S A PLANE! IT'S A FROG?

Scientists from Zoo Atlanta and elsewhere discovered a new species of tree frog in the forested mountains of Panama. What makes *Ecnomiohyla rabborum* "spectacular," the researchers say, are giant webbed feet, each nearly half as long as its body. The mitts allow the frog to leap from its perch and glide to the ground from a height of 30 feet.

GOURDS ON THE GO

Hey, Cinderella, pumpkins really do travel well. A new genetic analysis of 147 species of the gourd family (Cucurbitaceae) by the University of Munich suggests that gourds originated in Asia and floated across oceans to other continents. In the past 60 million years, gourds reached and took root in South America, Australia and Africa multiple times and colonized Madagascar—home to a cornucopia of gourd species today—on 13 separate occasions.

Observed

NAME: *Equus caballus*, the horse.
RUNS WITH: The herd.
RECOGNIZES: Individuals within the herd.
UNEXPECTED TALENT: Listening. In a new study, University of Sussex researchers presented a test horse with a herd mate, led the herd mate out of sight and then played a recording of a horse neighing. If it wasn't the herd mate's call, the test animal could tell—it looked fixedly in the direction of the sound, presumably surprised. It's the first demonstration of "cross-modal" recognition in animals; they identify each other by both sight and sound.

Listen to horse neighs at Smithsonian.com/WildThings

JOHN ANDERTON; H. BISCHOF / STOCKFOOD MUNICH / STOCKFOOD; DR. MARY TYLER / UNIVERSITY OF MAINE; BRAD WILSON; BIOSPHOTO / ERIC GUILLORET / PETER ARNOLD, INC.

Special Delivery

It took three generations to produce Wayne F. Miller's photograph of his newborn son

BY OWEN EDWARDS

OF THE 503 PHOTOGRAPHS by 273 photographers that were in Edward Steichen's landmark "Family of Man" exhibition in 1955, one may best reflect the show's title. Made on September 19, 1946, by Wayne F. Miller, it depicts the moment of birth—a doctor bringing into the world a baby boy, still attached to his mother by the umbilical cord, glistening with amniotic fluid and as yet unaware that a fundamental change has taken place.

The baby is David Baker Miller, the photographer's son, and the person least seen but most essential is Miller's wife, Joan. Many fathers, including me, have photographed their children being born, but Miller had already developed an extraordinary gift for capturing the intimate impact of such universal dramas as war and renewal—a gift that would sustain a photojournalism career spanning more than 30 years, including some 150 assignments for *Life* magazine. And what made the photograph especially apt for "The Family of Man" is that the doctor delivering the Millers' son was the child's grandfather, Harold Wayne Miller, then a prominent obstetrician at St. Luke's Hospital in Chicago.

"My father was proud of his work," Wayne Miller, now 90, told me during a recent visit to his 1950s-modern glass-and-redwood house in the hills above Orinda, in Northern California. "So he was happy to have me in there with my camera." (The senior Miller died in 1972 at age 85.)

I then asked Joan Miller, still youthful-looking at 88, how she felt about having her father-in-law as her OB-GYN. "Oh, I felt like a queen," she said. "He gave me the best care. Three of my children were delivered at St. Luke's, and when we moved to California and I had my fourth, I had to get used to being just another patient."

Though all went well with David's birth, there had been something of an Oedipal competition leading up to it.

"Wayne's father gave me all sorts of things to speed up the delivery," Joan recalls. "He wanted the baby to be born on his birthday, which was the 14th."

But young David was not to be hurried, and was born five days later—on Wayne's birthday. Now 62 and a software and hardware designer and entrepreneur, David doesn't think of himself as the famous subject of an oft-reprinted photograph (including in the recent book *Wayne F. Miller: Photographs 1942-1958*). "It's just something that happened," he says. "Being the child of a photographer, you kind of grow up with pictures being taken. The drill is, 'Don't screw this up, I have to sell this

Miller (with David and Joan in 2008) wanted to convey the "symbolism of birth."

MARK RICHARDS; P. 15 WAYNE F. MILLER

Newborn David B. Miller had the company of his mother (covered by sheets), grandfather (masked) and photographer father.

In the Pacific, Miller learned to light tight situations aboard ship by holding a flashbulb at arm's length. This proved to be the right approach in the delivery room.

photograph.' " (David said he tried to photograph the birth of the first of his three daughters, by Caesarean section, but fainted.)

Wayne Miller also was born in Chicago, in 1918, and he attended the University of Illinois at Urbana; he studied photography at the Art Center in Pasadena, California, but left because of the school's emphasis on advertising work. Six months after Miller was commissioned in the Navy in 1942, he began what would be a long association with Edward Steichen, one of the titans of 20th-century American photography.

In World War II, Miller worked with a special Navy photography team (a Pacific scene).

At the Navy Department in Washington, D.C., Miller managed to get some of his pictures in front of Adm. Arthur Radford, who would command Carrier Division 11 in the Pacific (and become, in the Eisenhower administration, chairman of the Joint Chiefs of Staff). Radford recommended that Miller meet with Steichen, who had been assigned to assemble a small team of Navy officers to photograph the Navy at war.

"Quick on the trigger," as he describes himself, Miller headed to New York City, met with Steichen and was hired as the youngest member of what became an elite five-man group.

"Steichen got us all together once," says Miller, "and we never met as a group after that. We had complete carte blanche to use military transportation, to go anywhere and photograph anything." But Steichen, while making extraordinary photographs himself, kept his eye on what the others were doing. "Steichen was a father figure to me," Miller says. "He was a fascinating teacher, never criticizing, always encouraging." On the wall of Miller's studio is a photograph of his mentor, late in his life, bending down over a potted redwood seedling in his Connecticut greenhouse.

The young officer saw plenty of action at sea and made an impressive contribution to Steichen's memorable project. (He is the last of the group still living.) But he also has fond recollections of going to Brazil to photograph a mine that provided most of the quartz crystals for military radios: the U.S. chargé d'affaires said he couldn't take pictures of the facility, "so for the next three weeks I was forced to spend most of the day on the beach," he says with a smile, "and most of the night partying."

In the Pacific, Miller learned to light tight situations aboard ship simply by holding a flashbulb at arm's length. This proved to be just the right approach in the delivery room when his son was born. Steichen, who became director of photography at the Museum of Modern Art in New York City after the war, organized "The Family of Man"—with Miller's help—as an appeal for cross-cultural understanding. It was Steichen who chose Miller's picture. "He had a tremendous feeling of awe about pregnancy and procreation," Miller says. "He was in love with every pregnant woman."

Most of the photographs in "The Family of Man" gained some measure of immortality, but the picture of the brand-new Miller baby may have the longest life of all. A panel led by the astronomer Carl Sagan included it in the things to be carried forever into the vastness of space aboard the two Voyager spacecraft. In Sagan's book *Murmurs of Earth: The Voyager Interstellar Record*, the picture is described simply as "Birth."

OWEN EDWARDS, *a former exhibition critic for* American Photographer, *is a frequent contributor to* SMITHSONIAN.

WAYNE F. MILLER (FROM *WAYNE F. MILLER: PHOTOGRAPHS 1948-1952*, EDITED BY STEPHEN DAITER AND PUBLISHED BY POWERHOUSE BOOKS)

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Bodies of Evidence

Excavations at a cemetery in Thailand reveal a 4,000-year-old indigenous culture **BY ANDREW LAWLER**

THE LITHE YOUNG woman rotates her wrists and hips, slowly and elegantly moving across the stage to the music of a traditional Cambodian orchestra. She seems the very embodiment of an *apsara*, the beautiful supernatural being that dances for the pleasure of Indian gods and heroes in their heavenly palaces. Reliefs of such creatures dot the nearby temples of Angkor Wat, where graceful poses have been frozen in stone for eight centuries by sculptors of the Khmer Empire.

This real-life apsara is dancing for tourists, but it is the plain white bangles on her wrists that catch my eye. I'd seen similar ones just a few days earlier, not far from this steamy Cambodian lowland, at an archaeological site in northeastern Thailand. They'd circled the arm bones of a woman who had died 2,000 years before the Khmer artisans first made stone sing at Angkor.

The bangles hint at something archaeologists have only lately grasped about Indochina, a region seen as an exotic but late-blooming hybrid of In-

Elaborate graves with pottery and jewelry at Ban Non Wat offer new clues to a long-lost Southeast Asian people.

CHARLES HIGHAM

With 18,000 miles of coastline, finding some much-needed breathing room is easier than you think.

There should be a sign somewhere that tells you just how much there is out here. At least that way you'd be prepared and not left breathless upon arrival. Because with enough of it wrapped around this place to stretch back and forth across Canada four times over, there's definitely no shortage. And practically all of it comes with a great ocean view – millions of seabirds, thousands of Humpbacks, and hundreds of freshly carved icebergs.

As you hike trails like the East Coast, Skerwink, Alexander Murray or Boney Shore, along ancient footpaths, through inlets, coves, and bays, you'll find plenty of room to clear your head – as well as the odd hiker you might pass along the way. And as you head west to Gros Morne National Park, a UNESCO World Heritage Site, Precambrian cliffs tower thousands of feet above landlocked fjords, and dwarf your very existence. Not a bad place, one would think, to forget about modern life. And to gain some serious perspective. Because with miles and miles of coastline begging for some company, it's perhaps the reason why people from all over find themselves right here.

To hike the most easterly point in North America, call Maggie at **1-800-563-6353** or visit **NewfoundlandLabrador.com/hiking**

Newfoundland Labrador
CANADA

dian and Chinese civilizations: long before these two neighboring behemoths cast their shadows in the first centuries A.D., Angkor's unnamed predecessors had forged their own sophisticated styles, along with complex irrigation systems, moated villages, long-distance trade and graves rich in beads and bronze artifacts. Indian and Chinese flavors only enriched this mix, producing the grandeur that today draws hundreds of thousands of visitors to central Cambodia each year.

More than 150 miles from Angkor Wat is a Thai village called Ban Non Wat. Standing on the edge of a vast 13-by 66-foot trench that he and local laborers have excavated, Charles Higham holds up a trowel for me to inspect; the steel tool is worn nearly to a nub. For the past 40 years, Higham, an archaeologist at the University of Otago in New Zealand, has labored in Thailand's dense jungles and rich rice fields to understand what took place here before the Khmer Empire rose to prominence, starting in the ninth century A.D. It's not easy. No written documents survive (only hints of an earlier culture in Chinese chronicles), and decades of war and genocide—not to mention leftover land mines—put much of Vietnam, Laos and Cambodia off limits to researchers.

Although scholars had dismissed Angkor's ancestors as isolated tribes living in small settlements, peacefully growing rice as they awaited enlightenment from Indian Buddhist missionaries and Chinese traders, Higham and a few other archaeologists are describing a vigorous and innovative people who merely grafted outside influences onto an already vibrant way of life. Higham believes that about 4,000 years ago, rice farmers from southern China made their way down river valleys and joined sparse bands of hunter-gatherers who lived off the heavily forested land. Clearing the jungle for fields, the newcomers domesticated cattle, pigs and dogs and supplemented their diet with fish, shellfish and wild game.

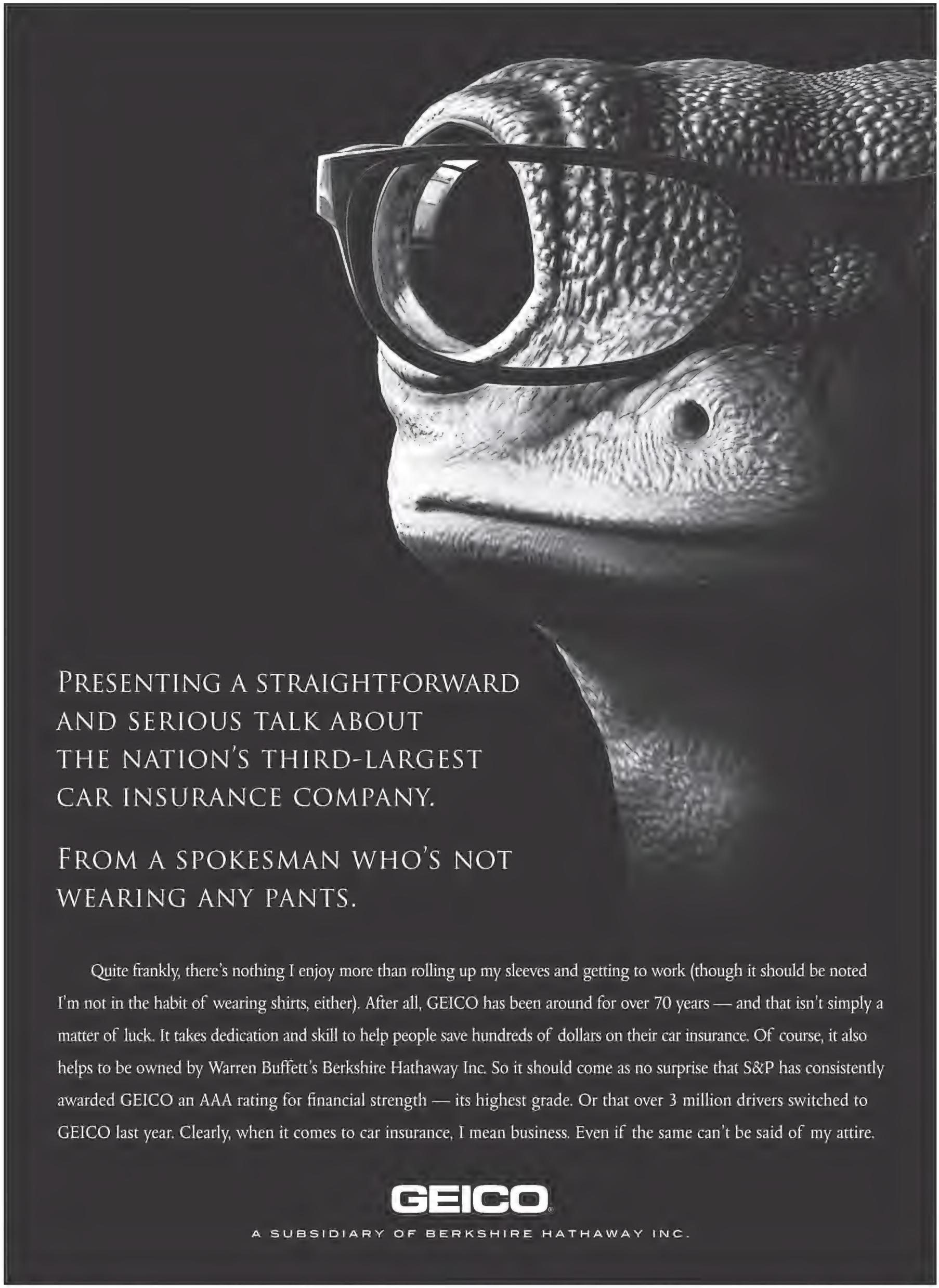
A Cambodian dancer's ornaments resemble those from the Bronze Age.

Centuries later, these settlers had uncovered large deposits of tin and copper in the highlands of what is now Laos and Thailand. By 1000 B.C., they were extracting these metals, turning them into ingots and trading them to villages hundreds of miles away. Five centuries later, Southeast Asians were smelting iron—a technology they likely borrowed from India or China—and building substantial towns. Non Muang Kao, now an archaeological site in eastern Thailand, encompassed more than 120 acres and housed as many as 2,500 people.

Higham says the ancient 30-acre settlement at Ban Non Wat is an "extraordinary find." Thanks to the highly alkaline soil in this area, which leaves bone intact, he has uncovered a well-preserved cemetery that spans a thousand years—from Neolithic times (1750 to 1100 B.C.) through the Bronze Age (1000 to 420 B.C.) and Iron Age (420 B.C. to A.D. 500). The graves are yielding rare insights into

The highly alkaline soil at Ban Non Wat has preserved 3,700-year-old remains.

GAVIN HELLIER / ROBERT HARDING WORLD IMAGERY / CORBIS; CHARLES HIGHAM



PRESENTING A STRAIGHTFORWARD AND SERIOUS TALK ABOUT THE NATION'S THIRD-LARGEST CAR INSURANCE COMPANY.

FROM A SPOKESMAN WHO'S NOT WEARING ANY PANTS.

Quite frankly, there's nothing I enjoy more than rolling up my sleeves and getting to work (though it should be noted I'm not in the habit of wearing shirts, either). After all, GEICO has been around for over 70 years — and that isn't simply a matter of luck. It takes dedication and skill to help people save hundreds of dollars on their car insurance. Of course, it also helps to be owned by Warren Buffett's Berkshire Hathaway Inc. So it should come as no surprise that S&P has consistently awarded GEICO an AAA rating for financial strength — its highest grade. Or that over 3 million drivers switched to GEICO last year. Clearly, when it comes to car insurance, I mean business. Even if the same can't be said of my attire.

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the pre-Angkor life of mainland Southeast Asia.

Higham's trench has several levels, each containing burials from a particular era. We climb down a ladder to the bottom of a rectangular pit, where two women using trowels and brushes painstakingly expose a skeleton; a long-haired young man sketches another in his notebook. On the opposite side of the trench, other women are digging pits looking for additional graves, and men use pulleys to bring baskets of earth up to be dumped and then sieved for missed artifacts.

Higham moves among the workers, joking with them in the local dialect and checking on their progress. A white canopy flaps over us in the breeze, blocking the intense subtropical sun. Higham points out a Bronze Age skeleton with 60 shell bangles and an infant surrounded by a wealth of pots and beads. Other graves clearly held high-status individuals, as shown by the tremendous effort that went into the burials; they were deep, with wooden coffins and elaborate offerings such as rare bronzes. The findings, Higham says, indicate that a social hierarchy was in place by the Bronze Age. Moreover, the remains of rice and pig bones, Higham says, "are evidence of ritual feasting, and an elaborate and highly formalized burial tradition."

This sort of archaeological research is increasingly rare. In many parts of the world, including North America, cultural mores prevent or curtail detailed examination of human remains, for reasons that Higham finds reasonable. "I have a cottage in England next to the village church and cemetery," he says, "and I wouldn't want a Thai archaeologist mucking around there." But Ban Non Wat's villagers express no such concerns, even those working at the site, brushing away dirt from bones that may belong to ancestors. Higham says that cremation came to the area in the first centuries A.D. (the result of Indian influence), and today's villagers "don't relate to the bones they find."

At another nearby site, called Noen U-Loke, detailed analysis of bones found among 127 graves suggests high rates of infant mortality. One of the more poignant finds was the remains of a child who likely suffered from cerebral palsy and was adorned with ivory bangles—a sign the child was loved and valued by the community. Individuals who survived infancy appear to have lived relatively healthy lives, despite evidence of leprosy and tuberculosis. Wild pigs, deer, turtles, along with domesticated plants and animals, provided a diverse diet, and dental health was surprisingly good.

Higham (at Ban Non Wat) says villagers "don't relate to the bones they find."

But there was violence, too. The skull of one woman was cleaved nearly in half by two blows with a sharp instrument. Forensic evidence suggests she was standing—and therefore alive—when attacked. She had not been an outcast; her skeleton was buried with jewelry. Another man died after an iron projectile pierced his spine.

Motioning me to follow him, Higham climbs back up the ladder and trudges across a muddy track past clucking chickens and mangy dogs. Soon we come to a slight rise. Beyond are several more small rises, separated by shallow water. These formations puzzled the archaeologists who first encountered them several decades ago. But we now know that villages ringed by moats a mile or more in circumference were a common feature once iron spades and shovels made construction of them possible in the Iron Age. In fact, aerial and satellite photographs reveal the ghostly rings of long-lost villages across huge swaths of Thailand and Cambodia.

The moats may have served several purposes beyond protecting settlements from invaders: they collected water during the dry season and channeled it during the rainy season. And the earthen berms ringing the moats provided foundations for palisades. Higham sees the moats and other defensive structures as further evidence that Khmer civilization did not originate abroad. "You already have social complexity here at 400 B.C.," he says, gesturing around. "This was not brought from India—it was indigenous."

Two-and-a-half millennia later, most of the wildlife is gone, burial practices are different and knowledge about the ancient beliefs of Southeast Asians is scarce. Higham nevertheless sees a thread stretching from the Bronze Age settlements to the present day. At least one connection is easy to spot. On a journey to Phimai, Thailand, I stop in a pleasant village, Ban Prasat, lazing in the afternoon heat. The village is dotted with excavated graves similar to those at Ban Non Wat, proof of its ancient heritage. In the yard of each dwelling is a small "spirit house," a shelter for local spirits that could otherwise cause mischief. Such spirit houses—reflecting an animistic tradition that predates the arrival of Hinduism or Buddhism—are found throughout Cambodia, Laos and Thailand, even in front of modern office buildings in trendy Bangkok. While archaeologists like Higham methodically excavate ancient settlements, tantalizing evidence of Southeast Asia's thriving indigenous culture remains hidden in plain sight.

ANDREW LAWLER *wrote about Egypt's greatest temple in the November 2007 issue.*

CHARLES HIGHAM

MY KIND OF TOWN

VINEYARD HAVEN, MASSACHUSETTS

Depite the summer influx of tourists, says the author, the town "remains at heart a working harbor."

Washed Ashore

The Pulitzer Prize-winning author delights in the island town's off-season

BY GERALDINE BROOKS PHOTOGRAPHS BY PAULA LERNER

HERE'S WHAT I LOVE MOST about my town: its edges. In three directions, Vineyard Haven ends abruptly, as a town should, surrendering, gracefully and completely, to farms and fields and watery expanses of harbor and salt ponds. Within minutes, you can leave town behind and be lost on a woody trail, eye to eye with a ewe or out on the whitecaps with a sea gull.

Because of these edges and what lies beyond them, it smells good here. The breezes that blow through my kitchen window mostly carry briny scents, tangy with ocean. But when the wind shifts south, there might be rich dark smells of loam or hints of hay from newly mown fields. I love maritime things, so I also love the way it sounds here. On sultry summer nights, the foghorn from the West Chop Lighthouse lulls me to sleep with its low, rhythmic groan. In the morning, the three-blast warning from the departing high-speed ferry tells me it's 7:40, time to get to work. On still nights, with the bedroom windows open, I can hear the clink of the shrouds on the sailboats moored behind the breakwater.

If the island of Martha's Vineyard resembles a tricorn hat, Vineyard Haven is notched into the northern crease of its crown. It is not the oldest town here. (Edgartown, where the English first settled, is more venerable.) Nor is it the loveliest. (The gingerbread cottages of Oak Bluffs and the stone-walled, picket-fenced perfection of West Tisbury are more picturesque.) While the name "haven" these days conjures respite and idyll, for the hardy English

After Labor Day, when the island is ours again, the volume drops as if someone's pressed the mute button.

"We do mind each other's business here," Brooks says (West Chop Lighthouse, opened in 1817), and "make no bones about it."

colonists it meant simply "harbor," and replaced the even-more-to-the-point previous name penned on the earliest maps: Holms His Hole. The town, despite its tourist veneer, remains at heart a working harbor, a good, deep, sheltered place to dock a ferry, moor a boat. With its marine railways, corrugated-metal workshops and waterfront fuel-storage tanks, the town remains scruffy and scuffed, unmanicured. Real.

The island of Martha's Vineyard is two quite different places: summer and off-season, although those of us lucky enough to live here prefer to think of the demarcation differently: summer and secret season. Vineyard Haven, where the big white car ferries come and go, reflects this duality. In June, the cars coming off the ferry are stuffed with the paraphernalia of the summer house: extra blankets and cookware, kayaks on the roof racks and bikes lashed to the trunk. When I see these cars with their lumpy, bungee-corded extrusions, my heart lightens: summer's really here; good for the vacationers, I hope they have a lovely time. But by Labor Day, when the last laden cars line up to leave, I breathe the sigh of relief of the year-round resident. It's a sigh that ripples across the island like a collective exhalation.

In summer, the world is too much with us. Yes, it is quite fun to find yourself in line to buy leeks behind Jake Gyllenhaal or sitting down to dinner at the next table from Bill Clinton. But no one likes the traffic, the crowds, the sudden infusion of citified bustle and self-importance. There's an island bumper sticker that sums it up: *Summer People, Some are Not!*

After Labor Day, when the island is ours again, the volume drops as if someone's pressed the mute button. We don't have to wince at the car horn, sounded by some dolt unaware that island etiquette is to wait silently while the mom loads her kid into the car seat or her groceries into the trunk; while the two old geezers, cars abreast on a two-lane byway, pause to discuss last night's Red Sox game. You just wait. However . . . long . . . it . . . takes. There's a natural patience that comes from living on an island, where you learn that you're never totally in control of your schedule. Need to get to the mainland today? In this fog? Forget it.

Sometime in late September, the air turns cooler and the light changes with the lowering autumnal sun. Instead of summer's strong, buttery yellow light, there's a pale liquid radiance that pours slantwise across the bronzing salt marshes and kindles the crimsoning leaves of the beetlebung trees. In the early mornings, when I walk my dogs along the wrack line of the beach, the green twists of seaweed flare and glitter like strands of Christmas tinsel.

For me, raised up among friendly, laid-back Aussies and then dipped (for the decade we lived in rural Virginia) into the reflexive courtesies of the American South, it's been tough to adapt to the tight-lipped terseness of New Englanders. But I've been here long enough now to recognize it for what it is: Yankee thrift, a kind of prudent economy of expression. Just as no self-respecting Yankee would dream of wasting food or flaunting ostentatious wealth, few feel

Those of us lucky enough to live here think of the demarcation differently: summer and secret season.

the necessity to waste words. So I've learned to get by without a lot of the social grease I used to need, because I now know that my neighbor who barely greets me day to day will be there in an instant if I ever really need him.

We do mind each other's business here, and we make no bones about it. In early spring, we gather in the elementary school gym for Town Meeting. Under discussion will be anything that requires the spending of our tax dollars. We'll vote to elect a fish committee to supervise the herring catch, argue about whether the dogcatcher should get a new office, or the harbor master an extra window to better watch over the port. Even though the moderator with her gavel is practiced and efficient, it can take three long evenings to get through all the warrant items. When I get up from the hard school bleachers, I wish there'd been a warrant item for the purchase of more comfortable seating. But my thrifty neighbors would never approve such a frivolous thing. As a relative newcomer—or wash-ashore, as we're called here—I love these meetings. It's where I begin to grasp the intertwining histories of families who have lived on this island since the 17th century, in the case of the English-settler descendants, and much earlier for the Wampanoag Indians who thrived here before the English arrived and who never allowed themselves to be displaced.

"Most summer people," the author says, "never get to know Vineyard Haven" (behind the popular Black Dog Tavern). The town's year-round population: 3,800 humans.

Most summer people never get to know Vineyard Haven. Most come here for the beaches, and the best of those are up-island, in Aquinnah, Chilmark, Menemsha. So they drive off the ferry and out of town, in haste to be elsewhere. A week or so later, on a rainy day, they might toil back down-island reluctantly, seeking groceries or a few Black Dog T-shirts as gifts for friends back home. While here, they might discover things they like: the Capawock Theatre, an old gem of a vintage cinema, recently reopened but still charmingly creaky and un-cinemaplex. Riley's Reads, a first-rate kids' bookstore where the proprietor can make spot-on recommendations. Midnight Farm, a wonderfully eclectic bit-of-everything emporium partly owned by the island's princess, Carly Simon. But other charms are more elusive to the casual visitor.

Vineyard Haven doesn't announce itself. You have to know that William Street is the place to find the wonderful Colonial, Victorian and Greek Revival houses that were not taken out by the fire that scorched the old town center at the turn of the century before last. And if, like me, you're a cemetery buff, Vineyard Haven has some of the best. When the winds are too raw and blustery for the beach, I walk my dogs to the graveyards and commune with the island dead. There's a lovely little old cemetery up by West Chop, where some of the many writers who've loved this town are laid to rest. William Styron and Art Buchwald are there, and John Hersey. (Lillian Hellman, whose house was here, is buried up-island, as is John Belushi.)

The larger town cemetery is on a rise of land well back from the harbor. It's a leafy place, with a lighthouse-shaped memorial to sailors. Nearby, a newer monument moves me each time I pass it: a simple granite plinth, inscribed with a Star of David and a Christian cross, the names of two men and their dates of birth and death. On one face of the plinth, two circles interlock. Underneath, the words: "Since 1958." The churchyard on Center Street has some of the oldest gravestones: wonderful Puritan names such as Experience and Thankful and creepy little skulls to remind us what's in store.

For many years, I was one of the many summer visitors who dreamed of moving here. I credit a graveyard visit for focusing my mind on the need to organize my life so I could actually do it. The inscription that inspired me was succinct and to the point. It read: "At last, a year round resident."

GERALDINE BROOKS' *most recent novel,* People of the Book, *is now available in paperback.*

Read more contributions to My Kind of Town at Smithsonian.com/mykindoftown

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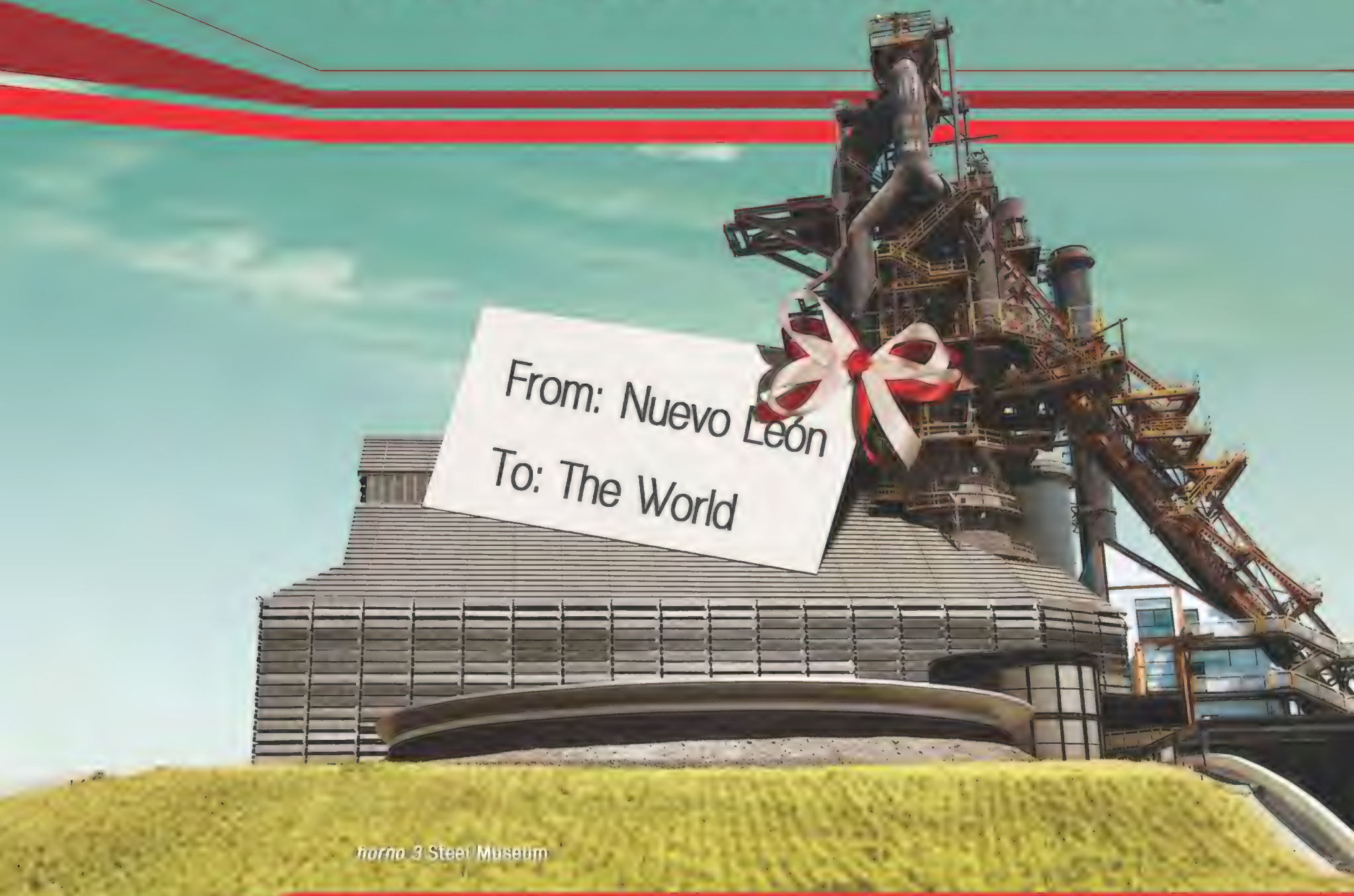

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Around the Mall

SCENES AND SIGHTINGS FROM THE SMITHSONIAN MUSEUMS AND BEYOND

WILLIAM FITZHUGH

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THE BASQUES WERE HERE

THE LEAST-KNOWN EXPLORERS OF THE NEW WORLD MIGHT HAVE FORMED AN UNUSUAL PARTNERSHIP WITH INDIGENOUS PEOPLE

PAGE 29

At Quebec's Hare Harbor, archaeologist Bill Fitzhugh says Basques hired Inuits to safeguard their outpost.

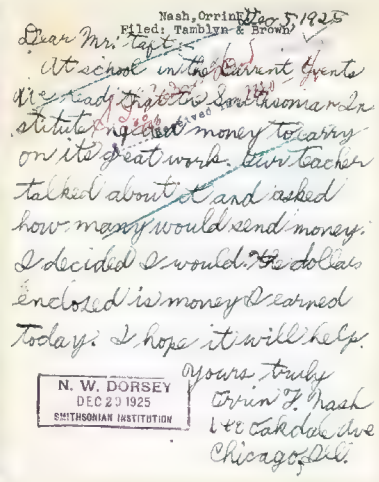
FROM THE CASTLE

Thinking Ahead

G. WAYNE CLOUGH

A DOLLAR WAS A LOT of money for 10-year-old Orrin Nash. In 1925, when young Orrin mailed a contribution to the Smithsonian, he explained that he had read the Institution needed money and that "the dollar enclosed . . . I earned today." Smithsonian Secretary Charles Doolittle Walcott, in a letter thanking the boy, assured Orrin that "no one can tell what part your dollar may play in . . . ferreting out . . . some secret of nature."

In his 1826 will, James Smithson, the Institution's founding benefactor, mandated "an establishment for the increase & diffusion of Knowledge. . . . " The 1846 act of Congress creating the Smithsonian provided specifics: a governing Board of Regents, a building, national collections, a library and publications. Congressman (and former President) John Quincy Adams served as chief planner and "indefatigable gadfly" during the Congressional debate over Smithson's bequest; Adams believed a Smithsonian Institution could make Washington a world center for scholarship, arts and sciences.


Nash, Orrin
Filed: Tamblyn & Brown
Dear Mr. Taft,
I am in the 4th grade
I read about the Smithsonian
Institution needed money to carry
on its great work. Our teacher
talked about it and asked
how many would send money.
I decided I would. The dollar
enclosed is money I earned
today. I hope it will help.
Yours truly
Orrin J. Nash
N. W. DORSEY
DEC 29 1925
SMITHSONIAN INSTITUTION

Dedicated donor: In 1925, ten-year-old Orrin Nash gave what he could.

That goal has been achieved, thanks to visionary planning. In 1927, the Regents commissioned a report on the Smithsonian's future; it focused primarily on expanding research but also predicted a role as the leader "in the museum movement in America." The 1993 commission described the Smithsonian as a "cultural and scientific institution" that should strengthen its educational and technological initiatives as well as its collaborative partnerships to reach broader audiences worldwide.

Recently I initiated another major look into the Smithsonian's future. It is essential, given the transformative changes underway in technology, communication, demographics, economics and interdisciplinary approaches to global issues. We are using scenario-based planning to ensure flexibility. As futurist Peter Schwartz explains in *The Art of the Long View*, scenario-based planning helps "make strategic decisions that will be sound for all plausible futures." We expect that the new plan will be completed by September.

Over the past 15 years, federal funding has not kept up with all the costs of running the Smithsonian, and increasingly we need additional sources of income, including philanthropic donations. We must become more financially self-reliant, more innovative in reaching new audiences and more compelling in explaining why others should support us. The new plan will also help us increase our work on issues important to our country—education, climate change, species loss and diminishing biodiversity. It will help explain our relevance to Congress, the new president and our many supporters. Among them is Orrin Nash's daughter. She and the Smithsonian Archives have recently shared copies of the 1925 letters—wonderful pieces of our (and her) heritage.

G. WAYNE CLOUGH *is Secretary of the Smithsonian Institution.*

Smithsonian Institution

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G. Wayne Clough

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JOINT EFFORT

EVIDENCE SURFACES OF AN UNLIKELY PARTNERSHIP IN NORTH AMERICA

BILL FITZHUGH KNEW he'd found something when he stepped off his research boat in the summer of 2001 at Quebec's Hare Harbor and saw red tiles beneath wet moss.

Fitzhugh, director of the Smithsonian's Arctic Studies Center at the National Museum of Natural History, had sailed up Canada's coast in search of Basque sites. The curved red tiles caught his eye because they were unique to Basque buildings. For the next seven summers Fitzhugh returned to the same spot to lead an archaeological dig.

Though the Basques were a major presence in Canada and South America from the 16th to the 18th centuries, physical evidence of their activities has been scant—and that's what Fitzhugh has been after. An independent people, the Basques originated in the mountainous region of southwest France and northwest Spain. They were master mariners and some of the first to ply the waters between Europe and the New World. Basque traders set up summertime camps on Canada's east coast. They fished cod and hunted whales, harvesting the meat and oil to sell in Europe. Historians have frequently overlooked the Basques because unlike later British, French and Dutch explorers, the Basque interest in the New World was purely commercial.

Glass beads manufactured between 1680 and 1720 (above) are the first archaeological evidence that Basques continued to travel to Canada through the early 18th century, says Bill Fitzhugh (top, with an iron spike at the Quebec site).

"The Basques didn't go around planting flags. They just made money and weren't really interested in anything else," says Mark Kurlansky, author of *The Basque History of the World.*

Previous archaeologists had found evidence of Basque outposts at Red Bay on the Strait of Belle Isle in Newfoundland, where the Basque harvested whales well into the late 16th century. When Fitzhugh began excavations at Hare Harbor, 150 miles west of Red Bay, he assumed he'd find remnants from the same period.

But Fitzhugh's work has unearthed two surprises. In early excavations at the site, he found colorful glass trade beads mixed in with distinctive Basque iron implements. Trade beads were used as currency by the Basque and other Europeans in their dealings with indigenous tribes. Lab studies revealed that these beads had been manufactured between 1680 and 1720—the first archaeological evidence that the Basques had continued to travel to Canada into the early 18th century.

The second surprise surfaced this past summer. The team began excavating what they thought was a midden, a pile of trash left behind when a settlement or camp is abandoned. Instead, they found a Basque blacksmith shop. The floors and walls were charred, suggesting there had been a fire. Then, when Fitzhugh lifted up the floor's stone paving slabs, he found another charred wooden floor. Scattered about were toys carved from soapstone, a form of Inuit handiwork. "That's when we knew we had an Inuit family at the site," Fitzhugh says.

Like the Basques, the Inuit were drawn to the region to hunt whales, as well as seals and walruses. Historical ac-

WILFRED E. RICHARD; JEAN-FRANCOIS MOREAU & ANJA HERZOG; SMITHSONIAN FOLKWAYS RECORDINGS

A CHILD SHALL LEAD THEM When Verve Records first released Janis Ian's song "Society's Child" in 1967, most radio stations refused to play it. The ballad tells the story of a white girl who ends an interracial romance because her community doesn't approve. Ian began writing the lyrics at age 13 while riding a school bus and completed the song a year later. The song became a hit on the protest circuit, alongside politically conscious music by the likes of Pete Seeger. Now it is part of Smithsonian Folkways' collection of "Classic Protest Songs," which will be released on March 24. Meanwhile, visit Smithsonian.com/jukebox to hear Ian's notes of defiance. ANIKA GUPTA

JUKEBOX

To see pictures of Fitzhugh's findings, go to Smithsonian.com/fitzhugh

Q&A

The landscape photographer **FRANK GOHLKE**, whose images have appeared in more than ten books, has a new show, "Accommodating Nature," at the Smithsonian American Art Museum. He spoke with the magazine's Anika Gupta.

YOU ONCE SAID YOU TRY TO CREATE IMAGES THAT AREN'T ABOUT NATURE. ISN'T THAT AN ODD STATEMENT FROM A LANDSCAPE PHOTOGRAPHER? In the 1970s, I developed this idea to look at the world we made, rather than the world we were born into. In essence, landscape is the biggest artifact that any culture creates.

ART CRITICS SAY YOUR PHOTOGRAPHS ARE MEANT TO CHALLENGE THE ROMANTIC NATURALISM OF ANSEL ADAMS. That's a pretty fair statement. When I was coming of age as a photographer, Adams was the great figure in landscape photography. I admired his work, but I didn't feel as though his vision of nature's grandeur was something I could believe in. I was more interested in looking at urbanization and the seamless mix between the human world and the natural world.

YOU'VE PHOTOGRAPHED TORNADOES, LANDSLIDES AND VOLCANIC ERUPTIONS. WHY ARE YOU DRAWN TO NATURAL DISASTERS? We're always trying to find certainty and security in a world that—even at its most civilized—is not very secure. We try to protect ourselves against volcanoes and tornadoes, but they overcome us despite our best precautions. So what happens after the worst happens? That's what I am after. Not the natural disaster, but the human response.

HOW SHOULD PEOPLE REACT TO YOUR PHOTOGRAPHS? I want people to get pleasure out of these images and come away with a larger sense of what's worth paying attention to. I want to convey a sense of how rich the ordinary world is.

Visit Smithsonian.com/gohlke for more of our interview with the photographer

MAKING HISTORY

FASTER THAN A SPEEDING BULLET Forget ninjas—Panamanian termites (*Termes panamaensis*) were the original masters of fighting in close quarters. The termites have the world's fastest mandible strike at 230 feet per second, according to a recent study at the Smithsonian Tropical Research Institute in Panama. A whack from a termite soldier's mandible is enough to injure or kill an enemy, such as a predatory ant or a soldier from a competing termite species.

The scientists think the Panamanian termite's defense is an adaptation to battle in the narrow tunnels of its nest, where there isn't much room to maneuver. "The termite soldiers do not employ stealth or surprise as a tactic," the researchers say, "because they are facing their adversary."

How do they muster such oomph? The termites compress their mandibles together so they build up energy like a coiled spring. The strike is executed when the mandibles are released, crossing over each other in a scissorlike motion. Postmortems of invading termites found that they had not been stabbed or pierced. Rather, they'd been killed by a blow to the head. **ANIKA GUPTA**

Want to see the termites in action? Visit Smithsonian.com/termites for a video

counts from the era, including the writings of Jesuit priests, suggest that contact between Basques and Inuit was limited but hostile. Although the Inuit resented the presence of European fishermen, they avoided direct confrontations with the more numerous Basques. Instead, when the whalers returned to Europe each winter, the Inuit raided the abandoned Basque shore stations for small boats, iron weapons and cookware—and sometimes burned down the work sheds to retrieve nails.

But Fitzhugh says the Inuit dwelling he discovered suggests that the two peoples might have lived together on occa-

A 17th-century Basque map shows the Strait of Belle Isle (upper right) in Newfoundland.

sion. "This is the first time we've really seen cooperation," says Fitzhugh. "We think the Basques hired this Inuit family to come help them in summertime, and then employed them to be guardians of the site in wintertime."

The Basque-Inuit partnership at Hare Harbor was probably short-lived. By 1700, French traders had arrived in Canada. The Inuit attacked isolated French outposts, raiding them for goods. The French struck back and allied themselves with local Indians to attack the Inuit. In 1728, a French commander recorded the death of an Inuit family in one such raid. Fitzhugh thinks the Frenchman might have been writing about the Inuit family whose household he found at Hare Harbor.

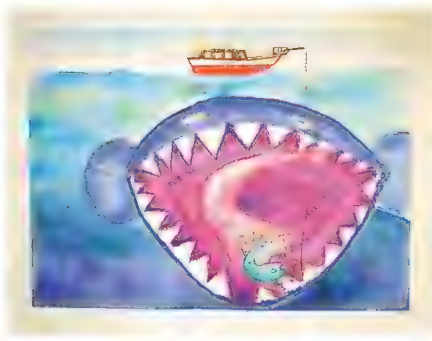
The massacre was so notorious that it may have lent the place its nickname. "We knew the local folks still living here called our little harbor 'Eskimo Harbor,'" Fitzhugh says. "Until now we couldn't figure out why." **ANIKA GUPTA**

AMON CARTER MUSEUM, FORT WORTH, TEXAS; BIBLIOTHEQUE NATIONALE DE FRANCE; MARC A. SEID

What's Up

JUST IN TIME

"A personal extravagance" is how curator Harry Rubenstein describes Abraham Lincoln's gold watch (right). See other items Lincoln held dear in an exhibit at the American History Museum through 2011.



WATER WORLDS

Ocean dwellers galore appear in entries to this year's Coastal America Ocean Art Contest (left: by 10-year-old Haedyn Standridge). See artworks by children of all ages at the Natural History Museum until March 29.

GLASS HOUSES

Architect Philip Johnson originally envisioned the Hirshhorn Museum as a glass tower in a utopian "town of culture" in Ontario, Canada. Tour an exhibit of pictures and architectural drawings of the museum that might have been (below) at the actual Hirshhorn until March 22.

IN THE ABSTRACT

The 1940s and 1950s saw the birth of American abstract art (*Figure in Black [Girl With Stripes]*, Robert Motherwell, 1947). A traveling exhibit showcases 31 of the most celebrated artists from the era. At the Patricia & Phillip Frost Art Museum at Florida International University until March 1.

SOMETHING TO CELEBRATE

Junkanoo and Kwanzaa are among the 50 African-American festivals and rituals portrayed in artifacts and images at the Anacostia Community Museum (below: a baptism in Lerty, Virginia, 2003) until September 20.

BY ANIKA GUPTA

VISIT THE SMITHSONIAN For a free Associates' planning packet, call 202 633-1000 or 202 357-1729 (TTY), 9 a.m. to 5 p.m. Monday through Friday and 9 a.m. to 4 p.m. Saturday. Or send an e-mail to info@si.edu. The Smithsonian Information Center in the Castle is open daily, 8:30 a.m. to 5:30 p.m. Members can visit the reception desk between 9 a.m. and 4 p.m. to register for a behind-the-scenes tour and to hear about membership benefits. Most museums are open daily, 10 a.m. to 5:30 p.m. All museums are closed December 25.

Get an insider's look at the Smithsonian at Smithsonian.com/mallblog

RICHARD STRAUSS / NMAH, SI; *DINNER FOR FOUR* BY HAEDYN STANDRIDGE; STILL FROM TERENCE GOWER'S *WILDERNESS UTOPIA* (2007), COURTESY OF THE ARTIST AND STICKY PICTURES; SMITHSONIAN AMERICAN ART MUSEUM; COURTESY OF JUBILEE RESEARCH COLLECTION, ANACOSTIA COMMUNITY MUSEUM, SI, PHOTO BY STEVEN M. CUMMINGS

Great Emancipator or unreconstructed racist? Defender of civil liberties or subverter of the Constitution? Each generation evokes a different Lincoln. But who was he?

By Philip B. Kunhardt III

Lincoln's Contest

ed Legacy

FROM THE TIME OF HIS DEATH IN 1865 TO THE 200TH ANNIVERSARY OF HIS BIRTH, February 12, 2009, there has never been a decade in which Abraham Lincoln's influence has not been felt. Yet it has not been a smooth, unfolding history, but a jagged narrative filled with contention and revisionism. Lincoln's legacy has shifted again and again as different groups have interpreted him. Northerners and Southerners, blacks and whites, East Coast elites and prairie Westerners, liberals and conservatives, the religious and secular, scholars and popularizers—all have recalled a sometimes startlingly different Lincoln. He has been lifted up by both sides of the Temperance Movement; invoked for and against federal intervention in the economy; heralded by anti-communists, such as Senator Joseph McCarthy, and by American communists, such as those who joined the Abraham Lincoln Brigade in the fight against the fascist Spanish government in the 1930s. Lincoln has been used to justify support for and against incursions on civil liberties, and has been proclaimed both a true and a false friend to African-Americans. Was he at heart a "progressive man" whose death was an "unspeakable calamity" for African-Americans, as Frederick Douglass insisted in 1865? Or was he "the embodiment . . . of the American Tradition of racism," as African-American writer Lerone Bennett Jr. sought to document in a 2000 book?

It is often argued that Lincoln's abiding reputation is the result of his martyrdom. And certainly the assassination, occurring as it did on Good Friday, propelled him into reverential heights. Speaking at a commemoration at the Athenaeum Club in New York City on April 18, 1865, three days after Lincoln died, Parke Godwin, editor of the *Evening Post*, summed up the prevailing mood. "No loss has been comparable to his," Godwin said. "Never in human history has there been so universal, so spontaneous, so profound an expression of a nation's bereavement." He was the first American president to be assassinated, and waves of grief touched every type of neighborhood and every class—at least in the North. But the shock at the murder explains only part of the tidal wave of mourning. It is hard to imagine that the assassination of James Buchanan or Franklin Pierce would have had the same impact on the national psyche. The level of grief reflected who Lincoln was and what he had come to represent. "Through all his public function," Godwin said, "there shone the fact that he was a wise and good man. . . . [He was] our supremest leader—our safest counsellor—our wisest friend—our dear father."

Not everyone agreed. Northern Democrats had been deeply opposed to Lincoln's wartime suspension of habeas corpus, which led to the imprisonment without trial of thousands of suspected traitors and war protesters. Though Lincoln had taken care to proceed constitutionally and with restraint, his opponents decried his "tyrannical" rule. But in the wake of the assassination even his critics were silent.

Across much of the South, of course, Lincoln was hated, even in death. Though Robert E. Lee and many Southerners expressed regret over the murder, others saw it as an act of Providence, and cast John Wilkes Booth as the bold slayer of an American tyrant. "All honor to J. Wilkes Booth," wrote Southern diarist Kate Stone (referring as well to the simultaneous, though not fatal, attack on Secretary of State William Seward): "What torrents of blood Lincoln has caused to flow, and how Seward has aided him in his bloody work. I cannot be sorry for their fate. They deserve it. They have reaped their just reward."

Four years after Lincoln's death, Massachusetts journalist Russell Conwell found widespread, lingering bitterness toward Lincoln in the ten former Confederate states that Conwell visited. "Portraits of Jeff Davis and Lee hang in all their parlors, decorated with Confederate flags," he wrote. "Photographs of Wilkes Booth, with the last words of great martyrs printed upon its borders; effigies of Abraham Lincoln hanging by the neck . . . adorn their drawing rooms." The Rebellion here "seems not to be dead yet," Conwell concluded.

For their part, African-Americans' pangs of loss were tinged with fear for their future. Few promoted Lincoln's legacy more passionately than critic-turned-admirer Frederick Douglass, whose frustration at the presidency of Andrew Johnson kept growing. Lincoln was "a progressive man, a human man, an honorable man, and at heart an antislavery man," Douglass wrote in December 1865. "I assume . . . had Abraham Lincoln been spared to see this day, the negro of the South would have had more hope of enfranchisement." Ten years later, at the dedication of the Freedmen's Memorial in Washington, D.C., Douglass seemed to recant these words, calling Lincoln "preeminently the white man's President" and American blacks "at best only his step-children." But Douglass' purpose that day was to puncture the sentimentality of the occasion and to criticize the government's abandonment of Reconstruction. And in the final decades of his long life Douglass repeatedly invoked Lincoln as having embodied the spirit of racial progress.

Douglass' worries about America proved prophetic. By the 1890s, with the failure of Reconstruction and the advent

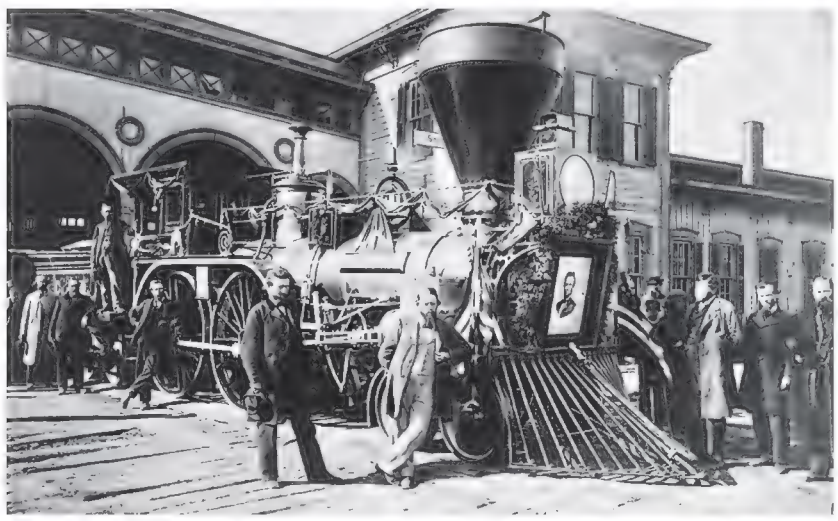
The level of national grief reflected who Lincoln was and what he had come to represent.

PHILIP B. KUNHARDT III *is co-author of the 2008 book* Looking for Lincoln *and a Bard Center Fellow.*

GRANGER COLLECTION, NEW YORK; PP. 32-33 GRANGER COLLECTION, NEW YORK

of Jim Crow, Lincoln's legacy of emancipation lay in ruins. Regional reconciliation—the healing of the rift between North and South—had supplanted the nation's commitment to civil rights. In 1895, at a gathering of Union and Confederate soldiers in Chicago, the topics of slavery and race were set aside in favor of a focus on North-South reconciliation. As the 1909 centennial of Lincoln's birth approached, race relations in the country were reaching a nadir.

In August 1908, riots broke out in Lincoln's hometown of Springfield, Illinois, after a white woman, Mabel Hallam, claimed she had been raped by a local black man, George



Lincoln's funeral train (left) passed through seven states; he was interred at Oak Ridge Cemetery in Springfield, Illinois (below: 1865).

Richardson. (She later admitted to making up the story.) On Friday, August 14, two thousand white men and boys began to attack African-Americans and set fire to black businesses. "Lincoln freed you," rioters were heard to yell. "We'll show you where you belong." The next night, the mob approached the shop of William Donnegan, a 79-year-old African-American shoemaker who had made boots for Lincoln and at whose brother's barbershop Lincoln used to mingle with African-Americans. Setting fire to Donnegan's shop, the mob dragged the old man outside and pelted him with bricks, then slashed his throat. Still alive, he was dragged across the street into a school courtyard. There, not far from a statue of Abraham Lincoln, he was hoisted up a tree and left to die.

Horrified by the reports of such ugly violence, a group of New York City activists formed the National Negro Committee, soon to be renamed the NAACP, with a young scholar named W.E.B. Du Bois to serve as director of publicity and research. From its beginning, the organization's mission was intertwined with Lincoln's, as one of its early statements made clear: "Abraham Lincoln began the emancipation of the Negro American. The National Association for the Advancement of Colored People proposes to complete it."

THE CENTENNIAL OF LINCOLN'S birth marked the largest commemoration of any person in American history. The Lincoln penny was minted, the first coin bearing the image of an American president, and talks took place in Washington about a grand Lincoln monument to be erected in the nation's capital. All across the country, and in many nations around the world, America's 16th president was extolled. An editorial in the *London Times* declared, "Together with Washington, Lincoln occupies a pinnacle to which no third person is likely to attain." The commander of the Brazilian Navy ordered a 21-gun salute "in homage to the memory of that noble martyr of moral and of neighborly love." The former states of the Confederacy, which less than 50 years earlier had rejoiced at Lincoln's death, now paid tribute to the leader who had reunified the nation. W. C. Calland, a state official in Missouri—which, during the Civil War, had been a border state that contributed 40,000 troops to the Confederate cause—barely contained his astonishment in a memorandum reporting on the festivities: "Perhaps no event could have gathered around it so much of patriotic sentiment in the South as the birthday of Abraham Lincoln. . . . Confederate veterans held public services and gave public expression to the sentiment, that had 'Lincoln lived' the days of reconstruction might have been softened and the era of good feeling ushered in earlier."

In most of America the celebrations were thoroughly segregated, including in Springfield, where blacks (with the exception of a declined invitation to Booker T. Washington) were excluded from a dazzling gala dinner. As the *Chicago Tribune* reported, it "is to be a lily white affair from start to finish." Across town, inside one of Springfield's most prominent black churches, African-Americans met for their own celebration. "We colored people love and revere the memory of Lincoln," said the Rev. L. H. Magee. "His name is a synonym for the freedom of wife, husband and children, and a chance to live in a free country, fearless of the slave-catcher and his bloodhounds." Referring to the "sacred dust of the great emancipator" lying in Springfield's Oak Ridge Cemetery, Magee called upon black people across America to make pilgrimages to Lincoln's tomb. And he cast his gaze forward a hundred years—to the bicentennial of 2009—and envisioned a Lincoln celebration "by the great-grandchildren of those who celebrate this centenary." In that far-off year, Magee predicted, "prejudice shall have been banished as a myth and relegated to the dark days of 'Salem witchcraft.' "

A notable exception to the rule of segregated com-

BETTMANN / CORBIS; GRANGER COLLECTION, NEW YORK

memorations took place in Kentucky, where President Theodore Roosevelt, a longtime Lincoln admirer, presided over a dramatic ceremony at the old Lincoln homestead. Lincoln's birth cabin, of dubious provenance, had been purchased from promoters who had been displaying it around the country. Now the state, with Congressional support, planned to rebuild it on its original site, on a knoll above the Sinking Spring that had originally attracted Thomas Lincoln, the president's father, to the property. The 110-acre farmstead would become the "nation's commons," it was declared—a crossroads linking the entire country.

Seven thousand people showed up for the dedication, including a number of African-Americans, who mixed in among the others with no thought of separation. When Roosevelt began his speech he hopped onto a chair and was greeted by cheers. "As the years [roll] by," he said in his crisp, excitable voice, ". . . this whole Nation will grow to feel a peculiar sense of pride in the mightiest of the mighty men who mastered the mighty days; the lover of his country and of all mankind; the man whose blood was shed for the union of his people and for the freedom of a race: Abraham Lincoln." The ceremony in Kentucky heralded the possibility of national reconciliation and racial justice proceeding hand in hand. But that was not to be, as the dedication of the Lincoln Memorial in Washington, D.C. 13 years later would make all too clear.

MEMBERS OF THE LINCOLN MEMORIAL commission—created by Congress in 1911—saw the monument not only as a tribute to the 16th president but also as a symbol of a reunified nation. With Northerners and Southerners having fought side by side in the Spanish-American War of 1898 and again in World War I, it was time, they felt, to put aside sectional differences once and for all. This meant that the Lincoln honored on the National Mall must not be the man who had broken the South militarily or had crushed the institution of slavery but the preserver of the Union. "By emphasizing his saving the Union you appeal to both sections," wrote Royal Cortissoz, author of the inscription that would be etched inside the finished building behind Daniel Chester French's nearly 20-foot-tall sculpture of the seated Lincoln. "By saying nothing about slavery you avoid the rubbing of old sores."

Two American presidents—Warren G. Harding and William Howard Taft—took part in the dedication ceremonies held on May 30, 1922, and loudspeakers on the memorial's rooftop carried the festivities across the Mall. Black guests were seated in a "colored section" off to the side. The commissioners had included a black speaker in the program; not wanting an activist who might challenge the mostly white audience, they had chosen Robert Russa Moton, the mild-mannered president of Tuskegee Institute, and required him to submit his text in advance for revision. But in what turned out to be the most powerful speech of the day, Moton highlighted Lincoln's emancipationist legacy and challenged Americans to live up to their calling to be a people of "equal justice and equal opportunity."

In the days that followed, Moton's speech went almost entirely unreported. Even his name was dropped from the record—in most accounts Moton was referred to simply as "a representative of the race." African-Americans across the country were outraged. The *Chicago Defender*, an African-American weekly, urged a boycott of the Lincoln Memorial until it was properly dedicated to the real Lincoln. Not long afterward, at a large gathering in front of the monument, Bishop E.D.W. Jones, an African-American religious leader, insisted that "the immortality of the great emancipator lay not in his preservation of the Union, but in his giving freedom to the negroes of America."

In the decades since, the Lincoln Memorial has been the scene of many dramatic moments in history. A photograph of President Franklin D. Roosevelt taken at the memorial on February 12, 1938, shows him leaning against a military attaché, his hand on his heart. "I do not know which party Lincoln would belong to if he were alive," Roosevelt said two years later. "His sympathies and his motives of championship of humanity itself have made him for all centuries to come the legitimate property of all parties—of every man and woman and child in every part of our land." On April 9, 1939, after being denied the use of Constitution Hall in Washington because of her race, the great contralto Marian Anderson was invited to sing at the Lincoln Memorial. Seventy-five thousand people, black and white, gathered at the monument for an emotional concert that further linked Lincoln's memory to racial progress. Three years later, during the bleak days of World War II, when it seemed that the Allies might lose the war, Lincoln's memory served as a potent force of national encouragement. In July 1942, on an outdoor stage within view of the Lincoln Memorial, a powerful performance of Aaron Copland's "Lincoln Portrait" took place, with Carl Sandburg reading Lincoln's words, including "we here highly resolve that these dead shall not have died in vain."

Frederick Douglass (left: c. 1866) praised Lincoln as a reconciler. Emancipation (center: a 1909 card) was "a beacon of hope," said Martin Luther King Jr. (at the Lincoln Memorial in 1963).

GRANGER COLLECTION, NEW YORK

In 1957, a 28-year-old Martin Luther King Jr. came to the Lincoln Memorial to help lead a protest for black voting rights. "The spirit of Lincoln still lives," he had pro-

claimed before the protest. Six years later, in 1963, he returned for the March on Washington. The August day was bright and sunny, and more than 200,000 people, black and white, converged on the Mall in front of the Lincoln Memorial. King's speech called Lincoln's Emancipation Proclamation "a beacon of hope to millions of Negro slaves who had been scarred in the flame of withering injustice." But it was not enough, he went on, simply to glorify the past. "One hundred years later we must face the tragic fact the Negro is still not free. . . . is still sadly crippled by the manacles of segregation and the chain of discrimination." And then he told the enraptured crowd, "I have a dream." Author and *New York Times* book critic Richard Bernstein later called King's words "the single most important piece of American oratory since Lincoln's Gettysburg Address."

Just three months after the speech, President John F. Kennedy would be assassinated, ushering in a period of national grief not unlike that after Lincoln's murder. Also echoing the previous century, Kennedy's efforts to advance civil rights had prompted some to mourn him as the "second emancipator." A. Philip Randolph, who had organized the March on Washington, declared that the time had come to complete "this unfinished business of American democracy for which two presidents have died."

To address a profound need for national healing and unity, JFK's widow, Jacqueline Kennedy—in consultation with other family members and official planners—decided to model her slain husband's funeral upon Lincoln's. The president's casket was laid in state inside the White House East Room, and was later taken to the Great Rotunda of the Capitol and rested upon the catafalque used at Lincoln's funeral. On their final procession to Arlington National Cemetery, the funeral cars passed reverently by the Lincoln Memorial. One of the most poignant images from that era was a political cartoon drawn by Bill Mauldin, depicting the statue of Lincoln bent over in grief.

IN THE NEARLY HALF CENTURY since, Lincoln's reputation has been under assault from various quarters. Malcolm X broke with the long tradition of African-American admiration for Lincoln, saying in 1964 that he had done "more to trick Negroes than any other man in history." In 1968, pointing to clear examples of Lincoln's racial prejudice, Lerone Bennett Jr. asked in *Ebony* magazine, "Was Abe Lincoln a White Supremacist?" (His answer: yes.) The 1960s and '70s were a period in which icons of all kinds—especially great leaders of the past—were being smashed, and Lincoln was no exception. Old arguments surfaced that he had never really cared about emancipation, that he was at heart a political opportunist. States' rights libertarians criticized his aggressive handling of the Civil War, his assaults on civil liberties and his aggrandizing of federal government.

BRIDGEMAN ART LIBRARY; BOB ADELMAN / MAGNUM PHOTOS

"One hundred years later we must face the tragic fact that the Negro is still not free."

In particular, the Nixon administration's perceived abuse of executive power during the Vietnam War prompted unflattering comparisons with Lincoln's wartime measures. Some scholars, however, rejected such comparisons, noting that Lincoln reluctantly did what he thought necessary to preserve the Constitution and the nation. Historian Arthur Schlesinger Jr., for one, wrote in 1973 that since the Vietnam War didn't rise to the same level of national crisis, Nixon "has sought to establish as a normal Presidential power what previous Presidents had regarded as power justified only by extreme emergencies. . . . He does not, like Lincoln, confess to doubt about the legality of his course."

Decades later, another war would again bring Lincoln's legacy to the fore. Shortly after the terrorist attacks of Sep-

tember 11, 2001, President George W. Bush addressed Congress with words evocative of Lincoln's comments at the outset of the Civil War: "The course of this conflict is not known," Bush said, "yet its outcome is certain. Freedom and fear, justice and cruelty, have always been at war, and we know that God is not neutral between them." As in the Vietnam era, subsequent controversies over the White House's conduct of the war on terror—such as the use of secret wiretapping and the detention of "enemy combatants" without trial—provoked another round of debates over presidential powers and the precedents created by Lincoln.

Despite such lingering controversies, Lincoln has consistently polled as one of the three greatest U.S. presidents, along with George Washington and Franklin D. Roosevelt. And though many African-Americans lost their veneration for him over the decades, recent statements by President Barack Obama and others suggest renewed appreciation. It was black Americans, after all, who refused to give up on Lincoln's emancipationist legacy even when American whites wanted to forget it. And if Lincoln shared in the racial prejudice of his day, it is also true that his outlook grew significantly over the years of his presidency. He was "the first great man that I talked with in the United States freely," Frederick Douglass wrote, "who in no single instance reminded me of the difference between himself and myself, of the difference of color."

"The past is the cause of the present," said Lincoln (a February 5, 1865, portrait), "and the present will be the cause of the future."

And yet, as Bennett and others have rightly insisted, the Lincoln of earlier generations of blacks was also in part a mythic figure—his own racial prejudices passed over too lightly, even as African-Americans' roles in emancipation were underemphasized. In a series of 1922 editorials for the NAACP journal the *Crisis*, W.E.B. Du Bois stressed the importance of taking Lincoln off his pedestal in order to place attention on the need for ongoing progress. But Du Bois refused to reject Lincoln in the process. "The scars and foibles and contradictions of the Great do not diminish but enhance the worth and meaning of their upward struggle," he wrote. Of all the great figures of the 19th century, "Lincoln is to me the most human and lovable. And I love him not because he was perfect but because he was not and yet triumphed." In a 2005 essay in *Time* magazine, Obama said much the same thing: "I am fully aware of his limited views on race. But . . . [in] the midst of slavery's dark storm and the complexities of governing a house divided, he somehow kept his moral compass pointed firm and true."

Lincoln will always remain the president who helped destroy slavery and preserved the Union. With stubbornness, caution and an exquisite sense of timing, he engaged almost physically with unfolding history. Derided by some as an opportunist, he was in fact an artist, responding to events as he himself changed over time, allowing himself to grow into a true reformer. Misjudged as a mere jokester, incompetent, unserious, he was in fact the most serious actor on the political stage. He was politically shrewd, and he took a long view of history. And he knew when to strike to obtain his ends. Just for his work on behalf of the 13th Amendment, which abolished slavery in the United States, he has earned a permanent place in the history of human freedom.

In addition, he was a man of patience who refused to demonize others; a person of the middle who could build bridges across chasms. Herein may lie one of his most important legacies—his unwavering desire to reunite the American people. In Chicago's Grant Park, the night he was declared the winner of the 2008 election, Obama sought to capture that sentiment, quoting from Lincoln's first inaugural address: "We are not enemies, but friends. . . . Though passion may have strained, it must not break our bonds of affection."

And with the inauguration of the nation's first African-American president, we remember that, in 1864, with the Union war effort going badly, the national government might have been tempted to suspend the upcoming elections. Not only did Lincoln insist they take place, he staked his campaign on a controversial platform calling for the 13th Amendment, willing to risk everything on its behalf. When he went on to an overwhelming victory in November, he obtained a mandate to carry through his program. "[I]f the rebellion could force us to forego, or postpone a national election," he spoke to a gathered crowd from a White House window, "it might fairly claim to have already conquered and ruined us. . . . [The election] has demonstrated that a people's government can sustain a national election, in the midst of a great civil war."

Around the world, governments routinely suspend elections, citing the justification of a "national emergency." Yet Lincoln set a precedent that would guarantee the voting rights of the American people through subsequent wars and economic depressions. Though our understanding of him is more nuanced than it once was, and we are more able to recognize his limitations as well as his strengths, Abraham Lincoln remains the great example of democratic leadership—by most criteria, truly our greatest president.

NATIONAL PORTRAIT GALLERY, SI

Learn more about Lincoln's life at Smithsonian.com/Lincoln

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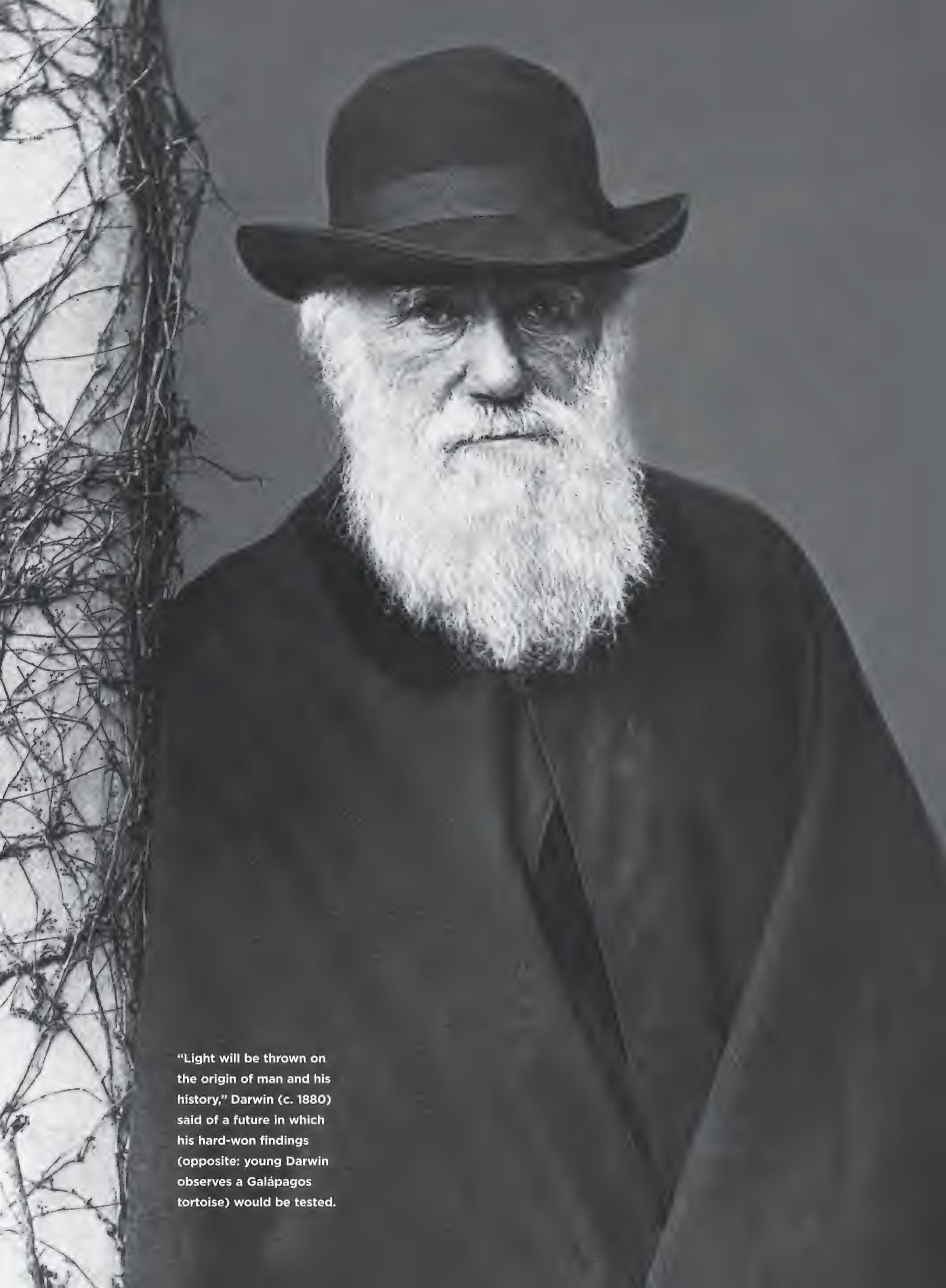

"Light will be thrown on the origin of man and his history," Darwin (c. 1880) said of a future in which his hard-won findings (opposite: young Darwin observes a Galápagos tortoise) would be tested.

What Darwin Didn't Know

Today's scientists marvel that the 19th-century naturalist's grand vision of evolution is still the key to life

By Thomas Hayden

CHARLES DARWIN WAS JUST 28 YEARS OLD WHEN, IN 1837, HE SCRIBBLED IN a notebook "one species does change into another"—one of the first hints of his great theory. He'd recently returned to England after his five-year journey as a naturalist aboard the HMS *Beagle*. In South America, Oceania and most memorably the Galápagos Islands, he had seen signs that plant and animal species were not fixed and permanent, as had long been held true. And it was as if he had an inkling of the upheavals to come as he pored over specimens he had collected and others had sent him: finches, barnacles, beetles and much more. "*Cuidado*," he wrote in another notebook around that time, using the Spanish word for "careful." Evolution was a radical, even dangerous idea, and he didn't yet know enough to take it public.

For another 20 years he would amass data—20 years!—before having his idea presented publicly to a small audience of scientists and then, a year later, to a wide, astonished popular readership in his majestic *On the Origin of Species*, first published in 1859. Today, *Origin* ranks among the most important books ever published, and perhaps alone among scientific works, it remains scientifically relevant 150 years after its debut. It also survives as a model of logical thought, and a vibrant and engaging work of literature.

Perhaps because of that remarkable success, "evolution," or "Darwinism," can sometimes seem like a

done deal, and the man himself something of an alabaster monument to wisdom and the dispassionate pursuit of scientific truth. But Darwin recognized that his work was just the beginning. "In the distant future I see open fields for far more important researches," he wrote in *Origin*.

Since then, even the most unanticipated discoveries in the life sciences have supported or extended Darwin's central ideas—all life is related, species change over time in response to natural selection, and new forms replace those that came before. "Nothing in Biology Makes Sense Except in the Light of Evolution," the pioneering geneticist Theodosius Dobzhansky titled a famous essay in 1973. He could not have been more right—evolution is quite simply the way biology works, the central organizing principle of life on earth.

In the 150 years since Darwin published *Origin*, those "important researches" have produced results he could never have anticipated. Three fields in particular—geology, genetics and paleoanthropology—illustrate both the gaps in Darwin's own knowledge and the power of his ideas to make sense of what came after him. Darwin would have been amazed, for example, to learn that the continents are in constant, crawling motion. The term "genetics" wasn't even coined until 1905, long after Darwin's death in 1882. And though the first fossil recognized as an ancient human—dubbed Neanderthal Man—was discovered in Germany just before *Origin* was published, he could not have known about the broad and varied family tree of ancestral humans. Yet his original theory has encompassed all these surprises and more.

Around the world, people will celebrate Darwin's 200th birthday with lectures, exhibits and festivities. In England, where Darwin already graces the ten-pound note, a special two-pound coin will be struck. Cambridge University is hosting a five-day festival in July. In North America, Darwin events are scheduled in Chicago, Houston and Denver, among many other places. Smithsonian's National Museum of Natural History established an "Evolution Trail" that highlights concepts from Darwin's work throughout the museum, and a special exhibit shows how orchids have evolved and adapted according to Darwin's theory.

As towering historical figures go, Charles Darwin does not provide much by way of posthumous scandals. The liberty-extolling Thomas Jefferson was slave master to his longtime mistress, Sally Hemings; Albert Einstein had his adulterous affairs and shockingly remote parenting style; James Watson and Francis Crick minimized their debt to colleague Rosalind Franklin's crucial DNA data. But Darwin, who wrote more than a dozen scientific books, an autobiography and thousands of letters, notebooks, logs and other informal writings, seems to have loved his ten children (three of whom did not survive childhood), been faithful to his wife, done his own work and given fair, if not exuberant, credit to his competitors.

He was born in Shrewsbury, England, on February 12, 1809, into a well-off family of doctors and industrialists. But his upbringing wasn't entirely conventional. His family was active in progressive causes, including the antislavery movement. Indeed, an illuminating new book by Adrian Desmond and James Moore, *Darwin's Sacred Cause*, concludes that Darwin's interest in evolution can be traced to his, and his family's, hatred of slavery: Darwin's work proved the error of the idea that the human races were fundamentally different. Both of his grandfathers were famous for unorthodox thinking, and Darwin's mother and physician father followed in those footsteps. Darwin's paternal grandfather, Erasmus Darwin, was a physician and natural philosopher of vast appetites—and correspondingly corpulent physique—who developed his own early theory of evolution. (It was more purely conceptual than Charles' and missed the idea of natural selection.) On his mother's side, Darwin's grandfather was the wealthy Josiah Wedgwood, founder of the eponymous pottery concern and a prominent abolitionist.

Darwin began training to be a physician but didn't have a

Darwin's origins **Charles came from a family of freethinkers; paternal grandfather Erasmus Darwin (top) developed his own theory of evolution. Charles grew up (above right: with sister Catherine) in Shrewsbury (left: the family estate) and married cousin Emma Wedgwood (above left) after five years as naturalist aboard the *Beagle* (below).**

JOSEPH WRIGHT OF DERBY / DARWIN COLLEGE, CAMBRIDGE, UK / BRIDGEMAN ART LIBRARY; GRANGER COLLECTION, NEW YORK; DARWIN HEIRLOOMS TRUST / ENGLISH HERITAGE PHOTO LIBRARY; ENGLISH HERITAGE PHOTO LIBRARY; SCIENCE PHOTO LIBRARY; PP. 40-41 ELLIOTT AND FRY / BETTMANN / CORBIS; P. 41 BETTMANN / CORBIS

taste for doctoring, so he moved on to studying for the Anglican priesthood at Cambridge. His real passion, however, was natural history. Shortly after graduation in 1831, he signed on for an unpaid position as a naturalist aboard the *Beagle*, which was about to embark on a survey of South American coastlines. During the five-year voyage Darwin collected thousands of important specimens, discovered new species both living and extinct and immersed himself in biogeography—the study of where particular species live, and why.

Upon his return to England in 1836, Darwin stayed busy, publishing scientific works on the geology of South America, the formation of coral reefs and the animals encountered during his *Beagle* expedition, as well as a best-selling popular account of his time aboard the ship. He married his cousin, Emma Wedgwood, in 1839, and by 1842 the growing Darwin family was established at Down House, in a London suburb. Charles, plagued by poor health, settled down with a vengeance.

By 1844, he was confiding in a letter to a fellow naturalist, "I am almost convinced (quite contrary to opinion I started with) that species are not (it is like confessing a murder) immutable." Still, he hesitated to publicize the idea, instead plunging into the study of domestic animal breeding—natural selection, he would argue, is not unlike the artificial selection practiced by a breeder trying to enhance or eliminate a trait—and the distributions of wild plants and animals. He devoted eight full years to documenting minute anatomical variations in barnacles. A prolific letter writer, he sought samples, information and scientific advice from correspondents around the world.

It was a young naturalist and professional specimen collector named Alfred Russel Wallace who finally spurred Darwin to publish. Working first in the Amazon and then in the Malay Archipelago, Wallace had developed an evolution theory similar to Darwin's but not as fully substantiated. When, in 1858, Wallace sent the older man a manuscript describing his theory of evolution, Darwin realized that Wallace could beat him into print. Darwin had an essay he had written in 1844 and Wallace's manuscript read at a meeting of the Linnean Society in London on July 1, 1858, and published together later that summer. Wallace, then on an island in what is now Indonesia, wouldn't find out about the joint publication until October. "There's been an argument about whether Wallace got screwed," says Sean B. Carroll, a biologist and author of books on evolution. "But he was delighted. He was honored that his work was considered worthy" to be included alongside that of Darwin, whom he greatly admired.

This first public airing of Darwinian evolution caused al-

"I am almost convinced (quite contrary to opinion I started with) that species are not (it is like confessing a murder) immutable," he wrote a fellow naturalist.

Sensing it would scandalize society and revolutionize science, Darwin (in 1859) published *Origin* only after decades of research.

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THOMAS HAYDEN *is the co-author of the 2008 book* Sex and War: How Biology Explains Warfare and Terrorism and Offers a Path to a Safer World.

most no stir whatsoever. But when Darwin published his ideas in book form the following year, the reaction was quite different. *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* soon sold out its first press run of 1,250 copies, and within a year some 4,250 copies were in circulation. Allies applauded it as a brilliant unifying breakthrough; scientific rivals called attention to the gaps in his evidence, including what would come to be known as "missing links" in the fossil record; and prominent clergymen, politicians and others condemned the work and its far-reaching implications. In 1864 Benjamin Disraeli, later Britain's prime minister, famously decried the idea—barely mentioned in *Origin*—that human beings too had evolved from earlier species. "Is man an ape or an angel?" he asked rhetorically at a conference. "I, my lord, I am on the side of the angels. I repudiate with indignation and abhorrence those newfangled theories."

Darwin had anticipated such protests. "Any one whose disposition leads him to attach more weight to unexplained difficulties than to the explanation of a certain number of facts will certainly reject my theory," he wrote in *Origin*. But, he also said, "I look with confidence to the future, to young and rising naturalists, who will be able to view both sides of the question with impartiality."

Puzzle Solved **The far-flung distribution of related species (top to bottom: an ostrich in South Africa, an emu in Australia and a rhea in Brazil) vexed Darwin. Why so similar? Continental drift, proposed in 1912 and confirmed in the 1960s, shows how descendants of a common ancestor were separated when landmasses moved (below).**

250 million years ago *100 million years ago* *Today*

THE AGE OF THE EARTH WAS, for Darwin, a major unexplained difficulty. He recognized that a great deal of time must have been necessary for the world's diversity of plants and animals to evolve—more time, certainly, than the 6,000 years allowed by the leading biblical interpretation of earth's age, but more also than many scientists then accepted. In 1862, the physicist William Thomson (later Lord Kelvin) calculated that the planet was unlikely to be more than 100 million years old—still nowhere near enough time for evolution to have acted so dramatically. "Thomson's views on the recent age of the world have been for some time one of my sorest troubles," Darwin wrote to Wallace in 1869. Further studies, including one by Darwin's son George, an astronomer, fixed earth's age at well under 100 million years.

It wouldn't be until the 1920s and 1930s that geologists, calculating the rates of radioactive decay of elements, concluded that the earth was billions of years old—according to the latest studies, 4.5 billion years. Darwin surely would have been relieved that there was enough time for evolution to have accounted for the great diversity of life on earth.

Modern geology has helped solve another puzzle that troubled Darwin—the existence of oddly similar terrestrial species on separate continents. How, for example, to explain the emus of Australia, ostriches of Africa and rheas of South America—large, flightless, long-necked birds with the same distinctive sternums? Early evolutionists, following Darwin, invoked scenarios such as long-gone land bridges stretching thousands of miles to explain how apparently related species could wind up so far apart. The outrageous truth wasn't revealed until the 1960s, when scientists discovered plate tectonics and confirmed that the continents, far from being permanent fixtures of land surrounded by water, were giant rafts floating on molten rock. This discovery justified the nagging suspicion of middle school students everywhere that the continents should fit together into a giant jigsaw puzzle, as indeed they once had. In Darwin's time, the idea that once-contiguous continents shifted apart, separating sister species one from another, would have been nearly as audacious as evolution itself.

EVOLUTION EXPLAINS the vast diversity of life on earth, with single species becoming many as they adapt to different environments. "Remarkably," says the evolutionary biologist Edward O. Wilson, "although his masterwork was entitled *On the Origin of Species*, Darwin really didn't pay much attention to how one species splits and multiplies into many." Darwin did acknowledge the importance of this process, called speciation, at the very end of *Origin*: "Life, with its several powers, having been originally breathed into a few forms or into one . . . whilst this planet has gone cycling on according to the fixed law of gravity, from so sim-

TUI DE ROY / MINDEN PICTURES; GERRY ELLIS / MINDEN PICTURES; KONRAD WOTHE / MINDEN PICTURES; ILLUSTRATION: MARTÍN VELASCO, 5W INFOGRAPHICS

ple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved." But, says Wilson, Darwin focused on "how one species was transformed by some force or other into another species through time, not how species could multiply."

Darwin's famous Galápagos finches—more than a dozen species all descended from the same South American ancestor—would become the iconic example of speciation. But understanding the process would have to wait for the work of Wallace in the mid-1860s. "Wallace clearly expressed [speciation] in a major study made of butterflies of the Malay Archipelago," Wilson says. Wallace, working in an area with tens of thousands of islands, showed that a single butterfly species could slowly become many as it adapted to the specific conditions encountered on each island. "From then on biologists put more time into thinking about multiplication of species," Wilson says, "and by the turn of the century they had a pretty clear idea of how species originate. But that was something that Darwin held back a little."

Darwin knew that plant and animal species could be sorted into groups by similarity, such that birds clustered into songbirds and raptors, say, with each group subdivided again and again down to dozens or hundreds of distinct species. He also saw that the individuals within any given species, despite many similarities, also differed from one another—and some of those differences were passed from parents to their offspring. And Darwin observed that nature had a brutally efficient method of rewarding any variation that helped an individual live longer, breed faster or leave more progeny. The reward for being a slightly faster or more alert antelope? The lions would eat your slower neighbors first, granting you one more day in which to reproduce. After many generations and a great deal of time, the whole population would run faster, and with many such changes over time eventually become a new species. Evolution, Darwin's "descent with modification through natural selection," would have occurred.

But what was the source of variation and what was the mechanism for passing change from generation to generation? Darwin "didn't know anything about why organisms resemble their parents, or the basis of heritable variations in populations," says Niles Eldredge, a paleontologist at the American Museum of Natural History in New York City.

In Darwin's era, the man who did make progress on the real mechanism of inheritance was the Austrian monk Gregor Mendel. In his abbey garden in the late 1850s and early 1860s, Mendel bred pea plants and found that the transmission of traits such as flower color and seed texture followed observable rules. For instance, when plants with certain dis-

A professional specimen collector finally spurred Darwin to publish. Wallace had developed a theory similar to Darwin's but not as fully substantiated.

Wallace (below right: in 1848) saw signs of evolution by natural selection in Malaysian butterflies (below left: his specimens).

THE NATURAL HISTORY MUSEUM, LONDON (2)

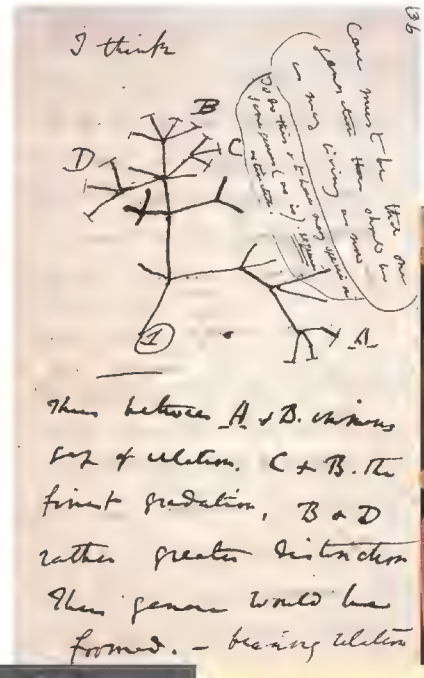
tinct traits were bred with each other, the hybrid offspring did not have a trait that was a blend of the two; the flowers might be purple or white, but never an intermediate violet. This surprising result helped point the way toward the concept of "units" of inheritance—discrete elements of hereditary information. An offspring inherits a set of these genetic units from each parent. Since the early 1900s, those units of inheritance have been known as genes.

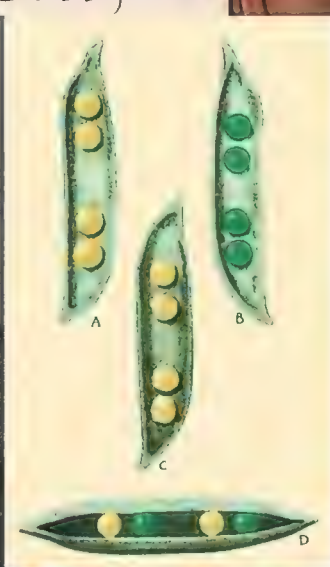
Mendel knew Darwin's work—his German copy of *Origin* was sprinkled with handwritten notes—but there's no evidence that Mendel realized that his units of inheritance carried the variation upon which Darwinian selection acted. "The interesting thing is that Mendel had both pieces of the puzzle in his hands, but he never put it together," says Michael Ruse, a historian and philosopher of science at Florida State University. "He never once said, 'Ah hah, I've got the answer to Darwin's problem.'" Mendel's discoveries remained obscure until after he died in 1884, and Darwin never knew of them. But what if he had? "If Darwin had read Mendel's papers, he might have picked up on it," Ruse says, "but I'm not sure it would have made much difference."

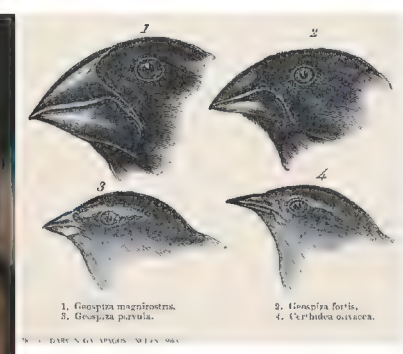
Today, comparative genomics—the analysis of whole sets of genetic information from different species—is confirming the core of Darwin's theory at the deepest level. Scientists can now track, DNA molecule by DNA molecule, exactly what mutations occurred, and how one species changed into another. (In one particularly fitting example, researchers are now working out the molecular changes that allowed Darwin's Galápagos finches to evolve different beaks in response to their different feeding strategies.) Darwin himself made a stab at drawing a "tree of life," a diagram that traces the evolutionary relationships among species based on their similarities and differences. But scientists are now constructing the most detailed tree of life ever, as part of the Encyclopedia of Life project (sponsored in part by the Smithsonian Institution), using DNA sequence data as well as traditional anatomical and behavioral characteristics to trace the precise evolutionary relationships among thousands and thousands of species.

There have been plenty of evolutionary surprises in recent years, things that Darwin never would have guessed. The number of genes a species has doesn't correlate with how complex it is, for example. With some 37,000 genes, rice has almost twice as many as humans, with 20,000. And genes aren't passed only from parent to offspring; they can also be passed between individuals, even individuals of different species. This "horizontal transfer" of genetic material is pervasive in bacteria; it's how antibiotic resistance often spreads from one strain to another. Animals rarely acquire whole genes in this way, but our own DNA is packed with smaller bits of genetic material picked up from viruses during our evolutionary history, including many elements that regulate when genes are active or dormant.

Do these surprises challenge the central idea of Darwinian evolution? "Absolutely not," says David Haussler, a genome scientist at the University of California at Santa Cruz. "I am struck with the fact daily that the more information we accumulate, the more validation we find of Darwin's theory." Once new material has nestled into a host's genome via horizontal transfer, the genetic material is as subject to natural selection as ever. Truly one of the most remarkable traits of Darwinism itself is that it has withstood heavy scientific scrutiny for a century and a half and still man-







Units of Inheritance **Darwin drew a tree of life (above left) but didn't focus on how species multiply, says Wilson (above). Mendel (far left) noted the laws of inheritance by crossing peas (left), but wasn't recognized until the 20th century. Though Darwin's finds (below right: his finches) hold up, the details are "more complicated than anyone thought," says Jablonka (below left).**

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ages to accommodate the latest ideas. "So far the data sets we've looked at and the surprises we've found show that the essence of the idea is right," Haussler says.

Another growing field of biology is shedding further light on the origins of variation. Evolutionary developmental biology, or evo-devo, focuses on changes in the exquisitely choreographed process that causes a fertilized egg to mature. Behind one series of such changes are the so-called homeotic genes, which dictate where legs or arms or eyes will form on a growing embryo. These central-control genes turned out to be almost identical even in animals as different as worms, flies and human beings. Many researchers now think that much of evolution works not so much through mutations, or random errors, in the major functional genes, but by tweaking the ways by which developmental genes control other genes.

"The building blocks of squids and flies and humans and snakes are stunningly similar," says Carroll, of the University of Wisconsin at Madison, one of the founders of evo-devo. "It kind of upsets your worldview at first," he adds, "but then you see that it bolsters the Darwinian view a thousandfold. These kinds of connections were at the heart of descent with modification."

Carroll says he thinks Darwin would be thrilled with the evolutionary details scientists can now see—how, for example, changes in just a small number of regulatory genes can explain the evolution of insects, which have six legs, from their ancestors, which had even more. From there, it's a short step to solving some of the mysteries of speciation, working out the mechanics of exactly how one species becomes many, and how complexity and diversity can be built up out of very simple beginnings. "I think this is a new golden age of evolutionary science," says Carroll. "But what we're really doing is fleshing out Darwin's idea in ever greater detail."

Perhaps the most surprising discovery in recent years has to do with one of Darwin's predecessors in evolutionary theory. Jean-Baptiste Lamarck, a French naturalist, developed his own theory of biological evolution in the early 19th century. He suggested that acquired traits could be passed along to offspring—giraffes that stretched to reach leaves on tall trees would produce longer-necked offspring. This "soft inheritance" became known as Lamarckism and soon proved susceptible to parody: Would clipping the tail off a rat lead to tailless pups? Of course not, and in time soft inheritance was dismissed, and Lamarck became a textbook example of shoddy thinking.

Then, in the early days of genetic engineering more than two decades ago, researchers inserted foreign genes into the DNA of lab animals and plants and noticed something strange. The genes inserted into such host cells worked at first, "but then suddenly they were silenced, and that was it, generation after generation," says Eva Jablonka, an evolutionary biologist at Tel Aviv University in Israel. Researchers figured out that the host cells were tagging the foreign genes with an "off switch" that made the genes inoperable. The new gene was passed to an animal's offspring, but so was the off switch—that is, the parent's experience influenced its offspring's inheritance. "Mechanisms that were at the time hypothetical proved to be real," says Jablonka, "and of course much more complicated than anyone thought, which is natural."

All sorts of changes in cellular machinery have shown up that have nothing to do with the sequence of DNA but still have profound, and heritable, impacts for generations to come. For example, malnourished rats give birth to undersized pups that, even if well fed, grow up to give birth to undersized pups. Which means, among other things, that poor old Lamarck was right—at least some acquired traits can be passed down.

Darwin included the concept of soft inheritance in *Origin*, mentioning "variability from the indirect and direct action of the external conditions of life, and from use and disuse," for example. It has been said that Darwin himself was not a particularly strict Darwinian, meaning that his work allowed for a wider variety of mechanisms than many of his 20th-century followers would accept. "In a way," says

> How right he was that "man is the modified descendant of some pre-existing form"—and that an awful lot of people would prefer to believe otherwise.

Key primates: 50-million-year-old Adapis (far left); million-year-old *Homo erectus* (third from right); Cro-Magnon *H. sapiens* (right).

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Jablonka, "we're going back to Darwin and his original, much broader notion of heredity."

ORIGIN BARELY TOUCHED UPON the most contentious evolutionary issue: If all life has evolved from "lower forms," does that include people? Darwin finally addressed the issue in *The Descent of Man, and Selection in Relation to Sex*, published in 1871, explaining he had been studying human evolution for years, but "with the determination not to publish, as I thought that I should thus only add to the prejudices against my views." How right he was, both that "man is the modified descendant of some pre-existing form"—and that an awful lot of people would prefer to believe otherwise. They shared Disraeli's discomfort at being descended from apes and complained that evolution pushed a divine creator to the side.

Disbelief in human descent may have been a justifiable comfort in Darwin's time, when few fossils of human ancestors had been discovered, but the evidence no longer allows it. Darwin, in *Origin*, admitted that the lack of "intermediate varieties" in the geological record was "the most obvious and gravest objection which can be urged against my theory."

The objection certainly applied to the paucity of ancestral human fossils in Darwin's time. Years of painstaking work by paleontologists, however, have filled in many of the important gaps. There are many more extinct species to be discovered, but the term "missing link" has for the most part become as outdated as the idea of special creation for each species. Anthropologists once depicted human evolution as a version of the classic "March of Progress" image—a straight line from a crouching proto-ape, through successive stages of knuckle draggers and culminating in upright modern human beings. "It was a fairly simple picture, but it was a simplicity born of ignorance," says biological anthropologist William Jungers of Stony Brook University in New York. "The last 30 years have seen an explosion of new finds."

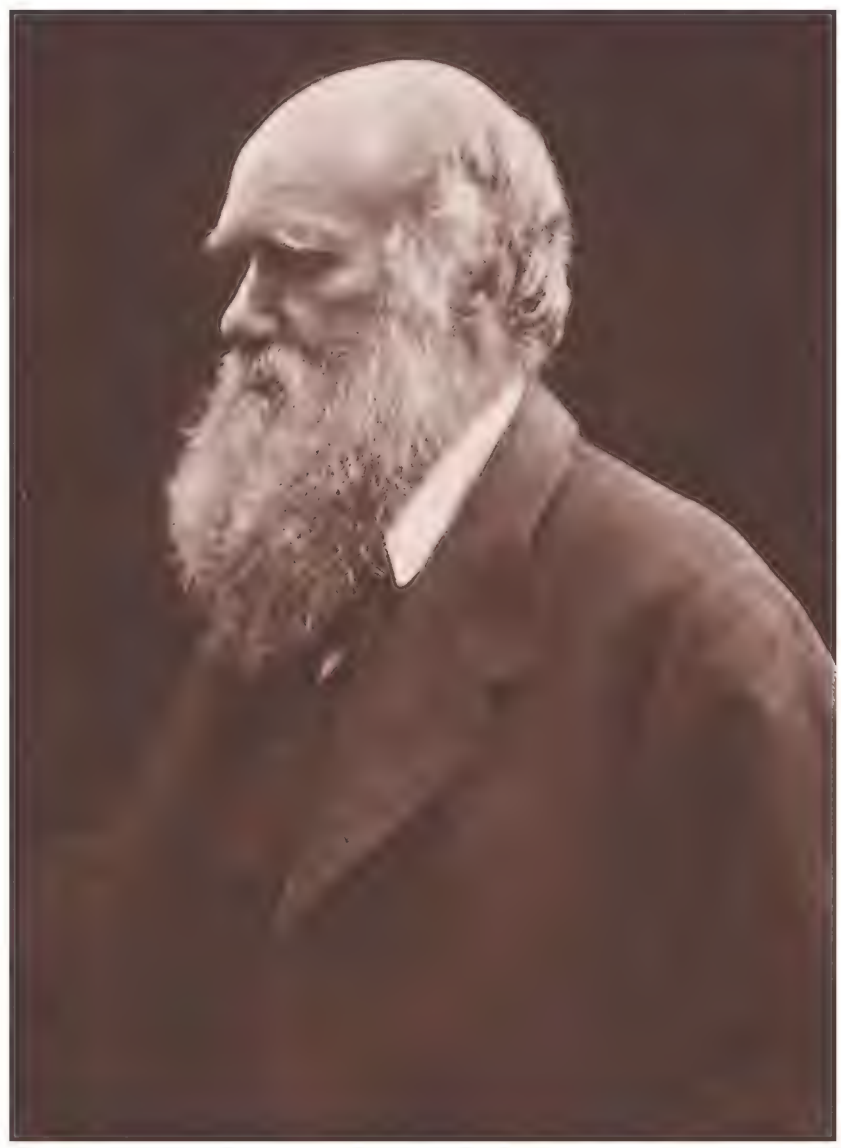
There are now hundreds of known fossils, stretching back six to seven million years and representing about two dozen species. Some were our ancestors and others distant cousins. "There have been many experiments in human evolution," Jungers says, "and all of them but us have ended in extinction." Our direct ancestors evolved in Africa some 200,000 years ago and started spreading out perhaps 120,000 years later. Remarkably, our modern human forebears shared parts of Europe and western Asia with the Neanderthal species as recently as 30,000 years ago, and they may have also overlapped with two other long-gone ancient humans, *Homo floresiensis* and *Homo erectus,* in Southeast Asia. "We were never alone on this planet until recently," Jungers says.

Darwin himself was confident that the deep past would be revealed. "It has often and confidently been asserted, that man's origin can never be known," he wrote in 1871. "But ignorance more frequently begets confidence than does knowledge: it is those who know little, and not those who know much, who so positively assert that this or that problem will never be solved by science." He also recalled, looking back on the shellacking he took for focusing on natural selection's role in evolution, that "the future must decide" whether "I have greatly overrated its importance." Well, the future has come down solidly on Darwin's side—despite everything he didn't know.

Asked about gaps in Darwin's knowledge, Francisco Ayala, a biologist at the University of California at Irvine, laughs. "That's easy," he says. "Darwin didn't know 99 percent of what we know." Which may sound bad, Ayala goes on, but "the 1 percent he did know was the most important part."

"It is those who know little, and not those who know much, who so positively assert that this or that problem will never be solved by science."

Darwin's 200th birthday (the naturalist in 1868) will be marked this year with lectures, exhibits, tours and parties worldwide.



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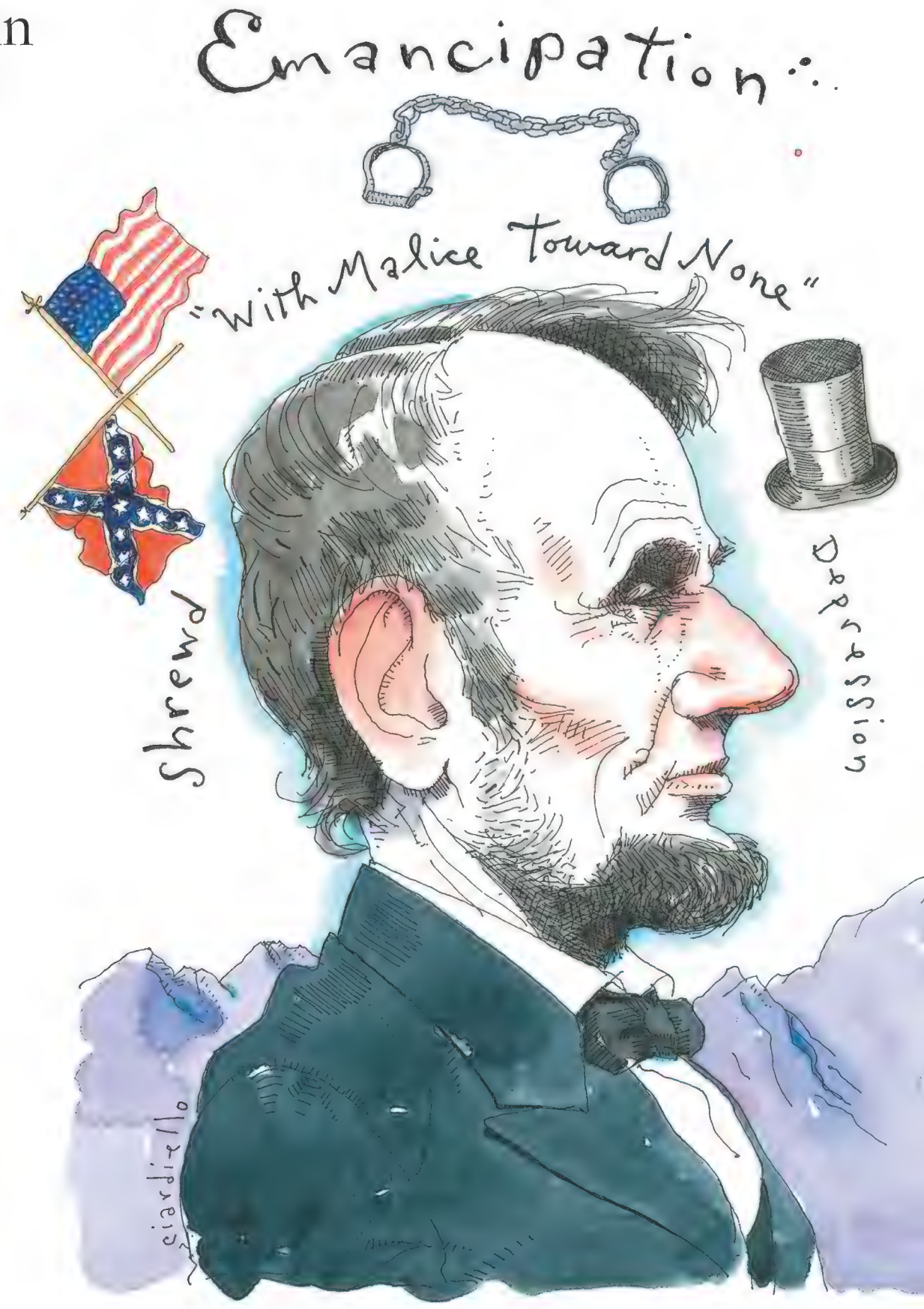
Twin Peaks

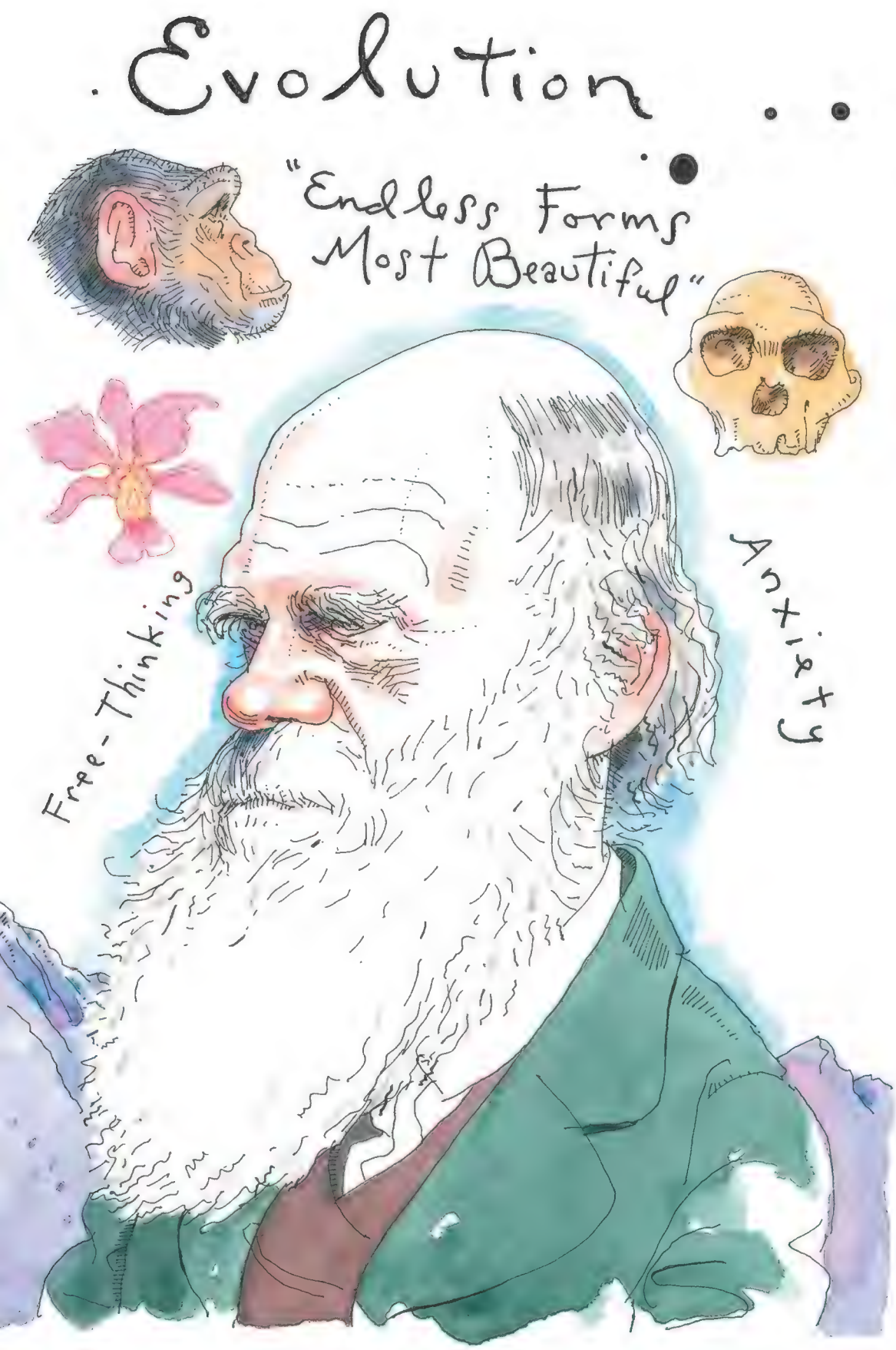
Their shared birth date is an intriguing coincidence, but what truly unites Darwin and Lincoln is how they shaped the modern world

By Adam Gopnik

Illustration by Joe Ciardiello



WE ARE ALL PEBBLES DROPPED IN THE SEA OF HISTORY, where the splash strikes one way and the big tides run another, and though what we *feel* is the splash, the splash takes place only within those tides. In almost every case, the incoming current drowns the splash; once in a while the drop of the pebble changes the way the ocean runs. On February 12, 1809, two boys were born within a few hours of each other on either side of the Atlantic. One entered life in a comfortable family home, nicely called the Mount, that still stands in the leafy English countryside of Shrewsbury, Shropshire; the other opened his eyes for the first time in a nameless, long-lost log cabin in the Kentucky woods. Charles Darwin was the fifth of six children, born into comfort but to a family that was far from "safe," with a long history of free-thinking and radical beliefs. He came into a world of learning and money—one grandfather, Josiah Wedgwood, had made a fortune in ceramic plates. Abraham Lincoln was the second of three, born to a dirt-poor farmer, Thomas Lincoln, who, when he wrote his name at all, wrote it (his son recalled) "bunglingly."



The obvious truths of 1809, the kind that were taught in school, involved what could be called a "vertical" organization of life—one in which we imagine a hierarchy of species on earth, descending from man on down toward animals, and a judge appraising us up above in heaven. Man was stuck in the middle, looking warily up and loftily down. People mostly believed that the kinds of organisms they saw on earth had always been here and always would be, that life had been fixed in place since the beginning of a terrestrial time that was thought to go back a few thousand years at most.

People also believed, using what they called examples ancient and modern—and the example of the Terror in France, which had only very recently congealed into Napoleon's Empire, was a strong case—that societies without inherited order were intrinsically weak, unstable and inclined to dissolve into anarchy or tyranny. "Democracy" in the sense we mean it now was a fringe ideal of a handful of radicals. Even in America, the future of the democracy was unclear, in part because of the persistence of slav-

ery. Although many people knew it to be wrong, other people thought it acceptable, or tolerable, or actually benevolent, taking blacks toward Christianity. Democracy was hard to tell from mob rule, and the style of mob rule. Democracy existed, and was armed, but didn't feel entirely liberal; the space between reformist parliamentary government and true democracy seemed disturbingly large, even to well-intentioned people. In the 1830s, Tocqueville, sympathetic to American democracy, was still skeptical about its chances, writing that "until men have changed their nature and are completely transformed, I will refuse to believe in the duration of a government which is called upon to hold together forty different nations covering an area half that of Europe."

No era's ideas are monolithic, and the people of 1809 in England and America did not believe these things absolutely. The new science of geology was pressing back the history of earth; old bones would start turning up that threatened old stories; the new studies of the text of the Bible were pressing against a literal acceptance of biblical truth, too. And there were many Utopian democrats in both countries. We can find plenty of radical ideas in that day, just as we will find traces of the astonishing ideas of the next century somewhere on the fringes of our own time. But on the whole these ideas belonged to the world of what would have been called "fancy," not fact.

By the time Abraham Lincoln and Charles Darwin were dead—the American murdered by a pro-slavery terrorist in 1865, the Englishman after a long illness in 1882—the shape of history had changed, and the lives they had led and the things they had said had done a lot to change it. Two small splashes had helped to change the tide of time. Very different beliefs, ones that we now treat as natural and recognize as just part of the background hum of our time, were in place. People were beginning to understand that the world was very, very old, and that the animals and plants in it had changed dramatically over the eons—and though just how they had changed was still debated, the best guesses, then as now, involved slow alteration through a competition for resources over a very long time. People were convinced, on the whole, that democratic government, arrived at by reform or revolution, was a plausible and strong way to organize a modern nation. (A giant statue, one of the largest since antiquity, of a goddess of Liberty was under construction in once-again Republican France to be sent to a vindicated Republican America, to commemorate this belief.) Slavery in the Western world was finished. (Although racism wasn't.)

Most of all, people thought that the world had changed, and would continue to change, that the hierarchies of nature and race and class that had governed the world, where power flowed in a fixed chain on down, were false. Life was increasingly lived on what we can think of as a "horizontal," with man looking behind only to see what had happened before, and forward to see what he could make next. On that horizontal plane, we are invested in our future as much as in our afterlife, and in our children more than in our ancestors. These beliefs, which we hold still, are part of what we call the modern condition—along with the reactive desire to erase the instability that change brings with it.

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The two boys born on the same day into such different lives had become, as they remain, improbable public figures of that alteration of minds—they had become what are now called in cliché "icons," secular saints. They hadn't made the change, but they had helped to midwife the birth. With the usual compression of popular history, their reputations have been reduced to single words, mottoes to put beneath a profile on a commemorative coin or medal: "Evolution!" for one and "Emancipation!" for the other. Though, with the usual irony of history, the mottoes betray the men. Lincoln came late—in the eyes of Frederick Douglass, maddeningly late—and reluctantly to emancipation, while perhaps the *least* original thing in Darwin's amazingly original work was the idea of evolution. (He figured out *how* it ran; he took a fancy poetic figure that his granddad, Erasmus Darwin, had favored and put an engine and a fan belt in it.) We're not wrong to work these beautiful words onto their coins, though: they were the engineers of the alterations. They found a way to make those words live. Darwin and Lincoln did not make the modern world. But, by becoming "icons" of free human government and slow natural change, they helped to make our moral modernity.

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The shared date of their birth is, obviously, "merely" a coincidence—what historians like to call an "intriguing coincidence." But coincidence is the vernacular of history, the slang of memory—the first strong pattern where we begin to search for more subtle ones. Like the simultaneous deaths of Thomas Jefferson and John Adams on July 4, 1826, the accidental patterns of birth and death point to other patterns of coincidence in bigger things. Lincoln and Darwin can be seen as symbols of the two pillars of the society we live in: one representing liberal democracy and a faith in armed republicanism and government of the people, the other the human sciences, a belief that objective knowledge about human history and the human condition, who we are and how we got here, exists. This makes them, plausibly, "heroes." But they are also *amazing* men, something more than heroes, defined by their private struggles as much as by their public acts.

Both men are our contemporaries still, because they were among the first big men in history who belonged to what is sometimes called "the bourgeois ascendancy." They were family men. They loved their wives uxoriously, lived for their children and were proud of their houses. Darwin was born to money, and though he kept some gentry tastes and snobberies, like the royal family of Albert and Victoria, who superintended most of his life, he chose to live not in imitation of the old aristocracy but in the manner of the new bourgeoisie—involving his children in every element of his life, having them help with his experiments, writing an autobiography for them and very nearly sacrificing his chance at history for the love of his religious wife. Lincoln's rise in history was to the presidency—but his first and perhaps even harder rise was to the big middle-class house and expensive wife he adored. What we wonder at is that a simple Springfield lawyer could become president; from his point of view, what probably was really amazing was that a cabin-born bumpkin had become a Springfield lawyer.

Both men were shaped in crucial ways by the worst of still-present 19th-century woes, the death of children at the height of their charm and wisdom. They both even had what one might call the symptomatic diseases of middle-class modernity, the kind that we pick out among the great roll call of human ills to name and obsess over. Lincoln was a depressive; Darwin subject to anxiety so severe that he wrote down one of the most formidable definitions of a panic attack that exists. Though the source of these ailments—in nature or genes, bugs or traumas—remains mysterious, their presence, the way they manifested themselves, is part of the familiarity the two men have for all the distance between us. They had the same domestic pleasures, and the same domestic demons, as we do.

We must be realistic about what they were like; not saints nor heroes nor Gods but people. Darwin and Lincoln are admirable and in their way even lovable men. But Lincoln, we have always to remember, was a war commander, who had men shot and boy deserters hanged. We would, I think, be taken aback at a meeting. Lincoln summed up in one word was *shrewd*, a backwoods lawyer with a keen sense of human weakness and a knack for clever argument, colder than we would think, and more of a pol and more of a wiseguy than we would like him to be: someone more concerned with winning—elections, cases and arguments—than with looking noble. Lincoln was smart, shrewd and ambitious before he was, as he became, wise, far-seeing and self-sacrificing. If we were around to watch him walk across a room, instead of stride through history, what we would see is the normal feet that left the noble prints.

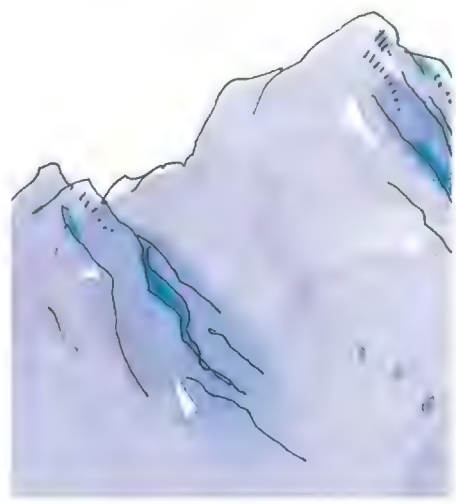
The new science of geology was pressing back the history of earth; old bones would start turning up; the new studies of the text of the Bible were pressing against a literal acceptance of biblical truth, too.

Darwin we would likely find far more frumpy and tedious than we would like our heroes to be—one of those naturalists who run on and on narrowly on their pet subjects. He would have frowned and furrowed his brow and made helpless discomfited harrumphs if any of today's fervent admirers arrived and asked him what he thought of man's innate tendencies to relish Tchaikovsky. One can easily imagine him brought back to earth and forced onto a television studio platform with eager admirers (like this one) pressing him for his views on sexual equality or the origins of the love of melody in the ancient savanna, and his becoming more and more unhappy and inarticulate, and at last swallowed up in a vast, sad, melancholy, embarrassed English moan.

Not that Lincoln didn't care about morality; but he cared more about winning wars and arguments than about appearing to be a paragon. Not that Darwin wasn't interested in speculative consequences of his theory—he

was—but the habit of pontification was completely alien to him, unless it was reassuringly tied with a bow of inductive observation.

Fifty years ago, not many would have chosen Darwin and Lincoln as central figures of the modern imagination. Freud and Marx would perhaps have been the minds that we saw as the princes of our disorder. But with the moral (and lesser intellectual) failure of Marxism, and the intellectual (and lesser moral) failure of Freud, their ideas have retreated back into the history of modernity, of the vast systematic ideas that proposed to explain it all to you. Lincoln and Darwin, by contrast, have never been more present: Lincoln is the subject of what seems to be the largest biographical literature outside those of Jesus and Napoleon, while Darwin continues not only to cause daily fights but to inspire whole new sciences—or is it pseudosciences? For the irony is that the most radical thing around, at the birth of the new millennium, turned out to be liberal civilization—both the parliamentary, "procedural" liberalism of which Lincoln, for all his inspirational gifts, was an adherent, and the scientific liberalism, the tradition of cautious pragmatic free thought, that engaged Darwin, who was skeptical of grand systems even as he created one. Science and democracy still look like the hope of the world (even as we recognize that their intersection gave us the means to burn alive every living thing on the planet at will).



teur can still sit down now and read right through. It's so well written that we don't think of it as well written, just as Lincoln's speeches are so well made that they seem to us as obvious and natural as smooth stones on the beach. (We don't think, "Well said!" we just think, "That's right!")

Darwin and Lincoln helped remake our language and forge a new kind of rhetoric that we still respond to in politics and popular science alike. They *particularized* in everything, and their general vision rises from the details and the nuance, their big ideas from small sightings. They shared logic as a form of eloquence, argument as a style of virtue, close reasoning as a form of uplift. Each, using a kind of technical language—the fine, detailed language of naturalist science for Darwin; the tedious language of legal reasoning for the American—arrived at a new ideal of liberal speech. The way that Darwin uses insanely detailed technical arguments about the stamen of an orchid to pay off, many pages later, in a vast cosmic point about the nature of survival and change on a planetary time scale, and the way that Lincoln uses lawyerly arguments about who signed what and when among the Founders to make the case for war, if necessary, to end slavery—these things have in common their hope, their faith, in plain English, that people's minds and hearts can be altered by the slow crawl of fact as much as by the long reach of revelation. Their phrases still ring because they were struck on bells cast of solid bronze, not chimes set blowing in the breeze.

Their general vision rises from the details and the nuance, their big ideas from small sightings. They shared logic as a form of eloquence, argument as a style of virtue, close reasoning as a form of uplift.

The deepest common stuff the two men share, though, is in what they said and wrote—their mastery of a new kind of liberal language. They matter most because they wrote so well. Lincoln got to be president essentially because he made a couple of terrific speeches, and we remember him most of all because he gave a few more as president. Darwin was a writer who published his big ideas in popular books. A commercial publishing house published *The Origin of Species* in the same year that it published novels and memoirs, and Darwin's work remains probably the only book that changed science that an amateur can still sit down now and read right through. It's so well written that we don't think of it as well written, just as Lincoln's speeches are so well made that they seem to us as obvious and natural as smooth stones on the beach. (We don't think, "Well said!" we just think, "That's right!")

In all these ways—their love of family, their shrewdness and sensitivity, their invention of a new kind of plain speaking—these two men are worth looking at together precisely because they *aren't* particularly remarkable. The things that they loved and pursued, the things that intrigued and worried them, were the same things that most other intelligent people in their day worried about and that worry and intrigue us still. Even mountains are made of pebbles, built up over time, and an entire mountain range of minds has risen slowly between them and us. Most of the rest have been submerged by time, but Darwin and Lincoln remain high peaks within those mountains of modernity, and they look out toward each other. From the top of one you can see the other, and what you see is what we are.

ADAM GOPNIK *is a staff writer at the* New Yorker.
JOE CIARDIELLO*'s artwork has appeared regularly in the* New York Times Book Review.

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UP CLOSE AT *Carnival*

WHAT'S REALLY BEHIND THE RAUCOUS PRE-LENTEN RITE? AN INTREPID SCHOLAR HITS THE STREETS OF *Trinidad* TO FIND OUT

by Barbara Ehrenreich

Photographs by Alex Smailes

WHEN NORTHERNERS THINK OF THE CARIBBEAN, TRINIDAD isn't usually the first place that comes to mind. Until recently, Trinidad had few tourist-oriented hotels or restaurants, and its crime rate is so high that visitors are advised not to venture outdoors wearing watches or jewelry, and definitely not at night. What Trinidad does have is carnival—a centuries-old blowout reputedly so wild and intense that it makes Mardi Gras look like a Veterans Day parade.

I had a reason beyond hedonism for making the trip. I'd spent nine years researching a book on the carnival tradition, *Dancing in the Streets: A History of Collective Joy*. Prehistoric rock drawings suggest that costuming and group dancing date back to the Paleolithic. In the 19th century, Western explorers found it going strong among indigenous peoples worldwide, including Polynesians, Inuits, West Africans, Australian Aborigines and villagers in India. In Europe, however, it had been suppressed when Protestantism and the Counter-Reformation wiped out most public festivities, which, over the years, had become flash points for popular unrest.

The European experience in Trinidad is a case in point: 18th-century French settlers brought the tradition of a pre-Lenten festival, in which they found it amusing to dress up and dance like their African slaves. The slaves found it even more amusing to use the confusion of carnival as an oc-

casion for uprisings. Long after the slaves were emancipated by the British in 1838, the colonial administration continued to fight the now-Africanized carnival piece by piece—banning, at one time or another, drums, masks and dancing in the streets.

But carnival survived, and my question was: What compromises had it made to do so? I had watched Key West's version of carnival—October's Fantasy Fest—go downhill over the years, blanched by commercialization and robbed of artistry as the point of it became to bare one's (painted) breasts and drink oneself sick. Had Trinidad managed to keep carnival's traditional creativity and political charge alive? Most of my years of research had been sedentary, in hushed libraries and poorly lit archives. Last February I decided to go dancing in the streets myself.

I arrived in Port of Spain two days before the official start of carnival, giving me plenty of time to see that "mas," as the Trinidadians call it (from "masquerade"), isn't just a diversion. It's practically a national mobilization. Tens of thousands of people poured into the squat, mountain-ringed city, most of them native-born "Trinis" home from other parts of the world, with a few European tourists thrown in. Banners flying over downtown streets advised, for safety's sake, to "stay with your lime," your lime being the friends you came with. Newspapers offered front-page reports of bitter rivalries in the pre-carnival soca music competitions, screaming headlines like " 'No One Will Spoil Dis Mas,' Warns Police Commissioner Paul" and earnest editorials on exactly the kind of questions that concerned me, such as whether the predominance of foreign-made bikini costumes has reduced carnival to a girlie show.

The festivities begin at 4 a.m. on the Monday before Ash Wednesday with a ritual called Jouvay, from either the French *jour ouvert* ("opening day") or the Creole *jou ouvé?* ("Is it daybreak yet?"). I had no idea of what I was getting into when I "registered" at the 3canal storefront center the day before. 3canal is both a musical band and one of the many small production companies that stage carnival; the name, according to one of the musicians, Roger Roberts, derives from a type of machete used by cane cutters and, he says, is "a metaphor for cutting and clearing a path and space for vibes to flow and grow." Despite assurances that no one really has to pay, I'd plunked down 60 Trinidadian dollars (about $10 U.S.) for a bag containing a 3canal badge, a white tank top, a square of silver lamé cloth and—ominously—a plastic water bottle filled with white paint.

A little after 4 a.m, I returned to the 3canal storefront with my little lime of four—two Trinis and two other Americans—to find hundreds of people milling around a flatbed truck from which the 3canal musicians were blasting the band's heavy beat into the darkness. Around Port of Spain, people were assembling into 14 other Jouvay bands, each several hundred to a thousand strong, and each with its own music and colors.

When the flatbed truck started rolling, the crowd danced along behind it or, more precisely, "chipped," which is Trinidadian for moving individually to music. At first I chipped in my resolute white-lady way, conscious of my status as the only visible blue-eyed person in the crowd. But then the paint came into play, hurled from bottles and dabbed on any body at hand. A plastic bottle of rough whiskey was passed around. There was a moment of near-panic when a police car forced its way through the crowd, and I learned later that in the pushing and shoving a knife fight had broken out just behind us. But still, the vibe here was overwhelmingly sweet. A teenager planted himself in

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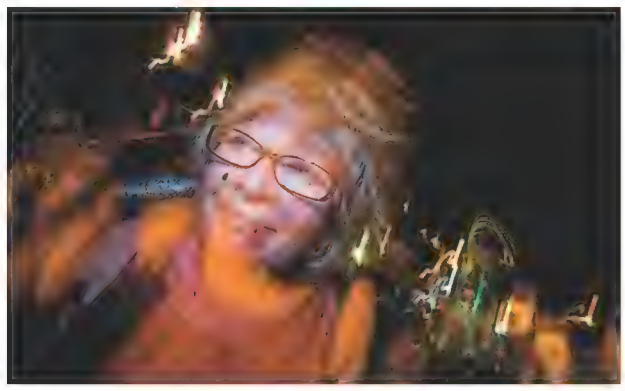
BARBARA EHRENREICH *has written more than 15 books. Photographer* **ALEX SMAILES'** *book* Trinidad and Tobago *appeared in 2006.*



In Trinidad and Tobago, carnival rites begin two days before Ash Wednesday with Jouvay, a pre-dawn "mas," or masquerade, that has roots in celebrations of the emancipation of the islands' slaves. Revelers in Port of Spain this past year included (counterclockwise from top left) the Lillibud Mud Band, Jab Molassie (patois for "Molasses Devil") and the author. The vibe, she says, was "overwhelmingly sweet." On Shrove Tuesday comes "pretty mas" (top: members of the Island People Mas), when bands compete on the basis of their music and costumes.

front of me and announced that I looked "too nice," a condition he corrected by gently anointing my face with fresh paint. I don't know the origins of this orgy of body-painting, and I am glad I hadn't joined one of the Jouvay bands that use chocolate or mud instead, but I know its effect: race was dissolved; even age and gender became theoretical concepts.

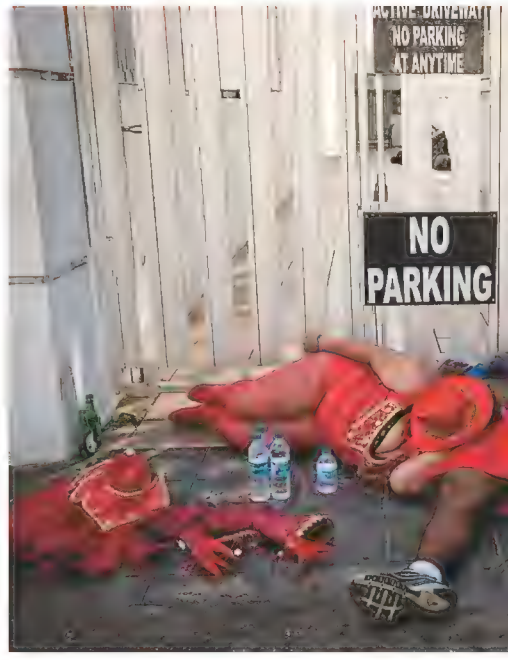
In the tradition of Western sociology, crowds are dangerous because they can turn into mobs. So when a contingent from our procession broke away to chase a group of Chinese men watching from the sidelines, I ran along anxiously behind them. Was there resentment of these workers, imported to build downtown skyscrapers? No. Would there be violence? No, the Jouvay celebrants just wanted to cover the foreigners in paint, and the Chinese were doubling over with laughter as they escaped. This was the true and ancient spirit of carnival: there can be no spectators, only participants, and everyone must be anointed.

Sunrise found us in a small public square, and in a condition far from the one we'd started in. We'd been moving through the streets for over three hours, powered by beers passed from hand to hand, and even my ultra-buff American friend was beginning to sag. People were still chipping away, raising their heads toward the already-hot blue sky in a kind of triumph.

Hardly anyone was noticeably drunk, but we were annihilated, as individuals anyway—footsore, bone-tired, dripping with paint and sweat. We were, in some transcendent way, perfected.

But carnival has many faces and many moods, with different towns observing it in their own special ways. At dusk we were in the tiny mountain town of Paramin, sitting at an outdoor fried-chicken place. The townspeople were slowly assembling on the edge of the road, drinking beer and chipping to a sound system that had been erected just behind our table. At nightfall, the sound system fell silent, and ten men beating drums made out of biscuit tins emerged from the darkness—a reminder of the Trinidadian ingenuity at drawing music out of industrial detritus, like the island's steel drums, traditionally crafted from oil barrels. Behind the drummers came 20 people of indeterminate age and gender, covered in blue paint, some wearing grotesque devil masks, others leering hideously, leaping and writhing. Then another band of drummers, followed by another contingent from hell.

Some of the devils were pulling others on ropes or mock-beating them with sticks in what is thought to be an evocation of the work-'em-till-they-die slavery of early Trinidad. Certainly, there was an edge of menace here. When a Blue Devil approached and stabbed his finger at you, you had to give him a Trinidadian dollar (worth 16 U.S. cents), or he would pull you up against his freshly painted body. The onlookers laughed and shrieked and ran, and in the end I didn't run fast enough. Having used up my dollars, partly in defense of two genuinely frightened little girls, I was slimed blue. As the devils eased up



on their attacks, the crowd swelled and surged toward the town's central square, where vendors were selling beer and rum amid the ongoing chipping. But I was too sticky with paint to continue—and too shaken, I have to admit, by the mimed hostility of the devils, with its echoes of historical rage.

Shrove Tuesday, the second day, is when the mas bands parade through Port of Spain to be judged on their costumes and music. If there was a time to witness the corrupting effects of commercialism, this "pretty mas"—so called to distinguish it from the first day's "old mas"—would be it. There are about 200 mas bands on the island, and each was offering, for the equivalent of several hundred U.S. dollars, a costume and such essentials as a day's worth of food and drink and private security. A pre-carnival article in the *Sunday Express* estimated that the big bands, with 3,500 or more members, would each gross ten million Trinidadian dollars, not counting donations from corporate sponsors, such as the ubiquitous cellphone company bmobile. This isn't just partying; this is business.

Through the 20th century, rising upper-class unease over Africanized carnival customs led to the promotion of pretty mas as an alternative; the event has evolved into a big-budget blowout that takes over the streets of Port of Spain (above). The baring of flesh is not discouraged (opposite top: members of the Island People Mas), and the music and dancing intensify whenever a competing band passes a judging station (far left). By day's end (left), celebrants may be ready for the self-denial of Lent. Band leaders count the fees they've earned (which may exceed $1.5 million U.S.). And others worry that the money is subverting carnival's communal joy.

According to historian (and soca star) Hollis Liverpool, pretty mas grew out of the upper classes' efforts to tamp down the African-derived aspects of traditional mas, which they saw as vulgar and unruly. To an extent, they have succeeded: the price of admission limits participation to the more affluent, such as Nadia John, a 30-year-old lawyer I met in her apartment on the Sunday before carnival. For John, it was all about the costume. She modeled the one she would wear with the Island People mas band: a bikini made of wire, feathers and jewels, so minimal that she dared not let her mother see it.

Not that the poor don't try to crash the party—hence the need for all the private security that surrounds each band as it moves through the streets. According to Wyatt Gallery, one of the owners of the Island People band, this is because "we're very serious about the competition and don't want to look bad," as they might if a lot of un-costumed people slipped in.

So I wasn't expecting much, beyond a chance to see Nadia John in her glory, when we walked from our hotel to the part of town where the mas bands would march and found a place on the curb to sit. But it turned out that even pretty mas is impossible to tame. Despite all the "owners" and "producers," people were still creating carnival themselves, in the streets and on the sidelines—chipping, drinking, eating and smoking ganja. Then the bands began to drift by, each with its own trucks for music, food and drink. The marchers were chatting, chipping and, most notably, "wining." This is like grinding in American dance culture, only the pelvic motions are quicker, more fluttery—an artistic rendition of sex rather than a simulation—and it can involve up to three people at a time. Probably not quite what the British meant by "pretty." One costumed woman sticks in my mind, lost in her own chip, throwing her head back, her face gleaming with exultation and sweat. As Goethe wrote of the 18th-century Roman carnival, it "is a festival that is not actually given to the people, but which the people give to themselves."

Yes, Trinidadian carnival has been commercialized—or "Brazilianized," as they say locally—with too much money and booty involved. But as Che Lovelace, a young artist told me, carnival "can't go back, it must go forward." The money helps support hundreds of Trinidadian artists, musicians and entrepreneurs, and, he says, "helps drive the economy and create jobs." In Trinidad, commercialization is not the death of carnival, but part of how it perpetuates itself.

Score card for carnival 2008: in a win for Trinidad's persistent devils, a preliminary body count came to 5 dead and 20 others stabbed or shot. But in a triumph for artistry and social relevance, the title of best mas band went to the MacFarlane band with the apocalyptic theme "Earth: Cries of Despair, Wings of Hope." Its call for planetwide renewal and its towering, avant-garde costumes—giant structures pulled by the wearer and wreathed in colored smoke—stole the show.

Bar pilots risk life and limb to guide ships (Dan Jordan leaps down onto a pilot boat) across the "Graveyard of the Pacific."

Running the Bar

Braving storms with 20-foot seas, an elite group of ship's pilots steers tankers and freighters through one of the world's most treacherous waterways—the mouth of the Columbia River

BY MATT JENKINS

PHOTOGRAPHS BY ED KASHI

AT FIRST LIGHT ON A WINTER MORNING OFF THE OREGON coast, the sky begins to luminesce the same creepy shade of doom you might expect at the Apocalypse. A gathering storm is chasing crab boats back to port, but the *Chinook* is running out to sea. Long as a locomotive and painted rubber-ducky yellow, it powers through the angry water with a thunderous *boozh-boozh-babooozh!* that sends explosions of spray hurtling past the pilothouse.

"She's built stout," yells Ken Olson, the boat's operator, and I want to believe. It feels as if we're riding a mechanical bull through a dunk tank, and I'm fighting the odd urge to yodel and retch simultaneously.

But this is just the morning commute for Capt. Dan Jordan, who routinely works in all manner of awful weather to guide ships into and out of the Columbia River. The bar, where the river's mighty current collides with ocean swells, is one of the most treacherous harbor entrances on the planet. Winter storms whip the sea into a ship-hungry maelstrom that long ago earned this patch of water the nickname "Graveyard of the Pacific." Pilots guide ships at every major harbor around the world, but the bar pilots here have distinguished themselves by working a potent brand of maritime mojo in the face of what a 19th-century naval officer called "the terrors of the bar."

Jordan has a rendezvous with the *Rainbow Wing*, a car carrier running in ahead of the storm with $72 million worth

of vehicles fresh off the assembly line in Japan. And time is tight. "It's a pretty big storm out there," Jordan says. The forecast calls for 24-foot seas.

When the *Rainbow Wing* finally materializes out of the scud, a dozen miles out to sea, it looks like a ten-story-tall anvil plowing through the water. White-over-blue and as long as two football fields, it has "Honda" emblazoned big and red across its ample stern. Partway down the length of the ship, dangling like an afterthought, is a rope boarding ladder.

Olson cranks the *Chinook* around to maneuver alongside. Jordan turns up his radio, zips into his float coat—a self-inflating survival jacket—and heads out on deck. The *Chinook* rises and falls beneath the pilot ladder, and gobbets of spray fly through the air. Jordan bides his time until he can feel the rhythm of the swells. The boat's deck rises once more, and he launches himself for the fourth rung. He scrambles up the ladder as another welter of water blasts over the pilot boat.

Once aboard the *Rainbow Wing*, Jordan negotiates his way between the rows of gleaming CR-Vs on the cargo decks to the bridge. He confers with the captain and gets a quick feel for the way the ship moves through the water. "On a ship like this," Jordan says, "you need to think way far in advance of where you are. It's a big piece of steel we're driving here. If you're not on top of things, once you get in trouble, it's too late to get out."

He heads the *Rainbow Wing* toward the bar. Huge rollers roar ashore on both sides of the river entrance as he begins finessing the ship between the rock jetties and down the ship channel. When the *Rainbow Wing* finally arrives in Portland some 100 miles upriver, 80 longshoremen will drive the 3,508 vehicles off the ship.

The *Rainbow Wing* is the first of several ships that Jordan and his fellow pilots will try to sneak into port before the full fury of the storm arrives. It's highly technical, difficult, wet, dangerous work, little known outside the fraternity of harbor pilots. Yet these men—and one woman—are a crucial link in the global supply chains that make possible the 21st century's just-in-time economy.

SOME 2,000 VESSELS and 700 souls have been lost on the Columbia River bar. Disaster has been written all over the chart ever since there was one. When the navy sloop *Peacock* arrived to map the area in 1841, it promptly wrecked on one of the sand spits bracketing the river's mouth—and the treacherous landmark was named Peacock Spit.

The bar pilots trace their heritage to 1813 and a one-eyed Chinook Indian chief named Concomly, who would paddle a canoe out to guide ships across the bar in exchange for axes, blankets and fishhooks. The Columbia River Bar Pilots organization was officially chartered in 1846 in Astoria, Oregon, 12 miles upriver, where today Victorian houses still crowd the steep hills to the waterfront and the pilots' office sits amid seafood restaurants and boat-repair yards. In the group's 163 years, some two dozen pilots have died on the job. The most recent was 50-year-old Kevin Murray. In January 2006, Murray took a cargo ship out in a storm, and as he climbed down the ladder toward the *Chinook*, a swell caught the pilot boat and Murray tumbled into the water, was swept away and drowned.

The bar pilots' work follows a seasonal rhythm. Beginning around October, the fierce North Pacific weather system, spanning thousands of miles, starts bowling ugly storms straight into the river's mouth like well-greased strikes. "It's brutal," says Neal Nyberg, captain of a government dredge that keeps the ship channel clear of sand. "I watch the bar

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MAP: GUILBERT GATES

pilots in the summer and it's like: Oh, what a joke. But it's in the winter when they pay the bills. Those poor bastards are out here getting the s--- kicked out of them."

These days, pilots still often haul themselves up and down gnarly wood-and-rope boarding ladders that look as if they were scrounged from the set of *Pirates of the Caribbean*. But they've also kept pace with the times. Their two so-called "fast boats"—the 73-foot, 2,600-horsepower, waterjet-propelled *Chinook* and *Columbia*—can survive a 360-degree roll. The Columbia River bar pilots are also one of the few pilot groups to use a helicopter, an Italian-made Agusta dubbed the *Seahawk* that can fly sideways at 45 knots, the better to maneuver onto ships when the wind is—in the pilots' idiom—blowin' like stink. Speed, after all, is everything. Every minute that a Chinese-made Tickle Me Elmo or a Japanese car languishes offshore, somebody's losing money. An estimated 40 million tons of cargo, worth $23 billion, crossed the Columbia River Bar in 2008. Taken together, Portland and several smaller ports upriver are first in the nation for wheat and barley exports, and third for automobile imports.

The "terrors" of the Columbia River bar (opposite) include submerged rocks and spits, powerful currents and violent storms. Bar pilots meet inbound ships offshore (left: climbing aboard) and steer them past the Astoria Bridge (below: looking toward Washington), where river pilots take the helm.

Each of the 16 bar pilots has the authority to close the bar when conditions are too dangerous. Still, Jordan says, "When we shut down the bar for two days, trains are backed up all the way into the Midwest. And just like a traffic jam on the freeway, once you clear the wreck, it takes a long time for it to smooth out again."

"There's a lot of pressure on us to keep working all the time," says Gary Lewin, a bar pilot for 26 years.

THE WATER GLITTERS BRIGHT beneath a beam of sunlight that has pierced the clouds, and Jordan has shepherded the *Rainbow Wing* into the ship channel. Now, though, he seems to be skidding the 41,643-ton monster sideways. If you're on a fully loaded ship with no quick way off, "stemming the tide" like this can be unsettling—it occasionally makes captains gasp. But Jordan is deliberately crabbing the ship down the channel to compensate for the currents that are pushing against its bow and stern.

Ahead, the Astoria Bridge looms over the silvery gray water. Throughout the run in from the open ocean, Jordan has kept the *Rainbow Wing* moving at full sea speed. Now he orders the engines throttled down. Almost as soon as he does, a tug pushes off into the channel ahead of us, nosing an enormous barge full of wood chips toward Portland.

Jordan recognizes the boat and radios ahead: "Good morning. Just wanted to make sure you saw us sneakin' up behind you there."

"Yep," the captain says with a laugh. "Got you spotted back there. You're pretty hard to miss."

Jordan asks the *Rainbow Wing*'s captain to post a crewman on the bow, so the ship can drop its anchors if things go screwy during the approach to the bridge. "All it takes is an engine failure," Jordan says, "and all of a sudden you've got a real exciting situation."

Things don't go wrong often—but when they do, they tend to do so in rather spectacular fashion. In November 2007, a bar pilot in San Francisco, relying primarily on electronic charts and radar, attempted to maneuver the container ship *Cosco Busan* beneath the Bay Bridge in heavy fog. The 901-foot ship sideswiped the base of a tower, ripped a 160-foot-long gash in its fuel tank and bled nearly 58,000 gallons of fuel oil into the bay. The pilot, who allegedly had failed to disclose that he was taking medications that could impair his performance, faces a federal criminal trial this spring for negligence and violating environmental laws.

The incident seems to be on Jordan's mind as he lines up the *Rainbow Wing* to pass beneath the Astoria Bridge. The day before, he had brought one of the *Cosco Busan*'s sister ships across the bar. "That's one of the hazards of these electronic charts," Jordan says. Too much faith in them can lead to what he calls an electronic-assisted collision.

Even as he says this, though, the *Rainbow Wing* glides smoothly under the bridge. Just beyond it, Jordan will turn the ship over to a river pilot, who will guide it to Portland.

THE WEAK DOLLAR had touched off a global run on American wheat. The freighter *Ansac Orient* was headed in for a load to take to South Korea. At 1:35 on a rainy morning, Capt. Debbie Dempsey, a gruff New Englander and the sole female Columbia River bar pilot, helicoptered onto the *Ansac Orient*'s water-washed deck as the ship moved through heaving seas. Dempsey jumped out, and the *Seahawk* lifted off—vortexes spinning off its rotors like smoke—shrieking

Helicopters shuttle bar pilots between ship and shore (opposite: hoist operator Wayne Simpson) and from one ship to another (above: Curt Nehring gets a lift at sea). Bar pilot Debbie Dempsey (left: guiding a Ukrainian ship into Astoria) was one of the first female captains in the Merchant Marine.

into the darkness back to the Astoria airport.

Pilots are never quite sure what they'll find when they climb aboard a ship. ("It's like when you rent a car," Jordan had said. "How do you find the radio station you want? How do you turn the headlights on?") After Dempsey made her way onto the darkened bridge, she ran the captain through a series of questions like a paramedic sizing up a patient: "Engine's good? Anchors? What's your draft, cap'n?"

She switched the radios to the frequencies used in the area, beeped through an electronic chart display and then moved to the radar. "There we go," she said after configuring the display to her satisfaction. "All right."

For the next hour, Dempsey settled into a ship-handling groove. The rhythmic knock of the ship's windshield wipers punctuated what sounded like a liturgy as she gave course orders and the helmsman, standing at the wheel, acknowledged them.

"Zero eight zero, please."

"Zero eight zero."

The world outside the bridge windows was incredibly dark. I mentioned that it felt as if we were steaming straight into a black hole. Dempsey laughed and said, "It can be real black." On the radar, whitecaps showed up as glimmering gold nebulae. Dempsey dialed down the contrast until we could make out the line of buoys marking the ship channel; beyond them lay the jetties and the river entrance.

"On a good day, I rarely look at the radar," she said. "That picture is in my head." It was not an exaggeration: one of the tests the bar pilots must pass to earn their license requires them to draw the nautical chart of the bar from memory. "You really know the water that you're working."

Despite all the jet-powered wizardry at their disposal, the pilots' stock in trade is still their feel for the water. They are drawn from the top ranks of ship captains. Many have more than three decades of sea experience, and all carry "unlimited master" licenses, which allow them to captain any ship of any kind, anywhere in the world.

Lewin, who's also the bar pilot group's administrator, was visiting San Francisco when we first met, as luck would have it, at a bar with a commanding view of the Bay Bridge, which the *Cosco Busan* would hit three months later. "What you learn from doing this a long time is that you never know what's going to happen," Lewin said. "But you always have an alternative. When you stop thinking ahead, you get in trouble."

He went on: "A big part of piloting is anticipating what the sea's going to do to you, and using nature's power to your advantage. You're trying to balance all these forces, and they're different every trip.

"It's Zen, I guess, in a funny sort of way. Too much yang, you're in trouble. Too much yin, same thing. If you get your yin and yang in balance, you make it."

Aboard the *Ansac Orient*, Dempsey described how, on a bad bar, heavy swells can lift a ship's propeller out of the water and stall the engine, leaving the vessel at the mercy of the currents. "Losing the engine on the bar—you don't wanna do that too often," she said. It has happened to her twice, and the standard operating procedure in that kind of emergency is pretty straightforward. "You kind of, um, hang on," she said, "while the crew tries to restart the engine." A ship can drop its anchors in an effort to hold fast in the channel, but bar-pilot wisdom is that the tactic will likely achieve little more than ripping the anchors off the ship.

A deeply loaded ship—or a short one that can't span two swells—can bottom out on the bar and break in half. And a tall-sided car carrier like the *Rainbow Wing* can surrender to high winds and veer out of the ship channel onto the shoals.

Late summer brings somewhat better weather and an entirely different hazard: fishing season, when the river clots up with small sport-fishing boats that are often oblivious to the container ships bearing down on them. "Basically," said Mike Glick, another pilot, "they'll risk their life for a stupid fish on the hook."

Summer can bring heavy fog, as well.

Which can mean heavy fog during fishing season.

And, of course, a ship's radars can always conk out at the worst possible moment—say, in heavy fog during fishing season.

Add to that the linguistic gumbo aboard most ships, and even a small problem can rapidly compound itself. "You may have six or seven different languages spoken on the same ship," Lewin said. "And when things are going wrong, everybody gets excited and reverts to their native language."

Vital to U.S. trade, bar pilots (Ken Olson helms a pilot boat, with Jordan, in yellow, and crewman) help move $23 billion in goods annually in and out of Columbia River ports (right: a Portland dock), which are No. 1 in wheat and barley exports.

The pilots all have a story about the day they almost hung up their float coats for good. Last February, a storm front crossed the bar just as Dan Jordan was piloting a tanker out to sea. The waves got so powerful they started pushing the ship backward, forcing Jordan to execute a rare and risky turnaround on the bar before running the ship to shelter upriver. In 2005, another pilot was forced to run a bulk carrier called the *Tilos* onto the beach to avoid hitting a sport-fishing boat in the ship channel.

Lewin's most memorable day came five years ago. In a storm, the bar can push a ship to the point where it can no longer power its way through the water and begins spinning out of control, like a car on ice. When that happened to him, Lewin was aboard a ship inbound from China. "Brand-new ship, maiden voyage—a loaded tanker," he said. "And as I'm coming in across the bar, all of a sudden this swell was a little bigger than I'd anticipated. The swell's hitting my ship one way, and I want to turn the other way. I started making my turn early, but the ship doesn't wanna turn—in fact, I'm starting to turn the wrong way," he said. "So I put more rudder on it. I put the rudder all the way over—hard right rudder—and asked for all the rpms they could give me. And the ship still kept turning the other way. So I'm pointed right at the North Jetty, with a loaded tanker full of gaso-

STEVE TERRILL / CORBIS

line, going as fast as the ship will go. And I had no control. The sea was taking control of the ship."

Only after another swell took hold of the ship and providentially swung it back onto the channel's centerline did Lewin manage to squeak through. It may have been then that Lewin first picked up his Zen shtick.

"You're fighting nature at the same time you're using it to help you—but if you're not careful, it will take control," he said. "You develop an awful lot of respect for what the ocean can do to you. It does things you can't overpower."

ALL DAY LONG, the bar pilots have been helicoptering to and from ships as they work them in and out ahead of the storm. Once night falls, the weather rapidly deteriorates. Debbie Dempsey is on her way out aboard the *Darya Raag,* and at the Astoria airport the helicopter crew is readying to bring her in. Jeremy Youngquist, the helicopter pilot, buckles in and radios the Federal Aviation Administration for special clearance for a low-level flight below the descending clouds.

We lift off and wheel out into blackness. The *Seahawk* crosses the beach just 250 feet above the water, its five-million-candlepower searchlight stabbing through the rain and cloud.

Far out ahead, a vague presence beckons—the *Darya Raag*, safely across the bar with a load of petroleum coke bound for Australia, 23 days away. Within minutes, we're directly over the ship, and Wayne Simpson, the hoist operator, slides open the helicopter's rear door.

Below us, the ship is bucking through the water. Simpson sees that there is no way the helicopter can set down on deck. He prepares to pluck Dempsey off the ship with the hoist and bring her aboard the *Seahawk*. Up front, Youngquist and the co-pilot quickly run through a checklist to make sure the engines can spin out all the power they'll need to keep the helicopter safely suspended between the *Darya Raag*'s heaving deck cranes.

Simpson's voice is a steady incantation over the intercom as he talks Youngquist in. With each roll the ship makes, the cranes swing uncomfortably close.

Dempsey, wearing a harness, stands ready at the portside rail, and Simpson toggles the hoist control to send the hook down. The night is blacker than sin. Jet exhaust and rain are gusting through the cabin, and I half-expect the seven trumpets of Revelation to sound at any moment.

Then, in one quick motion, Dempsey clips into the hook and lifts off. A cascade washes over the deck beneath her. On her way up, she wraps one arm around the hook while she shields something beneath her other arm. As she scooches into the cabin and Simpson unclips her from the hook, Dempsey hands me the object under her arm—a box of green tea.

"Yeah," she says with a laugh, once she's plugged into the intercom. "The captain gave it to me on the way off the bridge."

Only then does Youngquist say that, from up front in the pilot's seat, he'd watched the wind and waves create a weird spinning genie hovering just off the ship's bow as Dempsey came up. As Youngquist wheels the helicopter around back toward shore, his voice comes crackling once more through the headsets: "It's gettin' funky out here."

The bar pilots take two more ships out that night. At around 5 in the morning, Capt. John Torjusen barely manages to get a bulk freighter called the *Phoenix Island* out, crawling across the bar as swells roll down the deck. Once the ship is safely in the open ocean, the helicopter crew hoists Torjusen aboard and flies him back to land.

For the next 19 hours, the bar is too dangerous to cross, and the order goes out to close it. Inbound ships gather off the coast, outbound ships remain in port, dockworkers and freight trains pause their frenzied handling of goods and the pilots leave the bar to itself.

The Freedom Riders

FIGHTING RACIAL SEGREGATION AT BUS DEPOTS IN THE SOUTH NEARLY HALF A CENTURY AGO, THEY WERE INSULTED, BEATEN AND ARRESTED. A NEW BOOK CATCHES UP WITH THEM DOWN THE ROAD

by Marian Smith Holmes

PORTRAITS BY ERIC ETHERIDGE

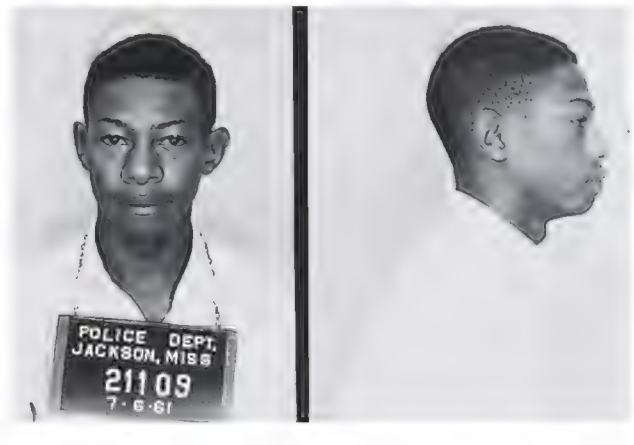
After a mob attacked a bus with protesters in Alabama in 1961, hundreds more joined the cause.

ON SUNDAY, MAY 14, 1961—MOTHER'S DAY—SCORES OF angry white people blocked a Greyhound bus carrying black and white passengers through rural Alabama. The attackers pelted the vehicle with rocks and bricks, slashed tires, smashed windows with pipes and axes and lobbed a firebomb through a broken window. As smoke and flames filled the bus, the mob barricaded the door. "Burn them alive," somebody cried out. "Fry the goddamn niggers." An exploding fuel tank and warning shots from arriving state troopers forced the rabble back and allowed the riders to escape the inferno. Even then some were pummeled with baseball bats as they fled.

A few hours later, black and white passengers on a Trailways bus were beaten bloody after they entered whites-only waiting rooms and restaurants at bus terminals in Birmingham and Anniston, Alabama.

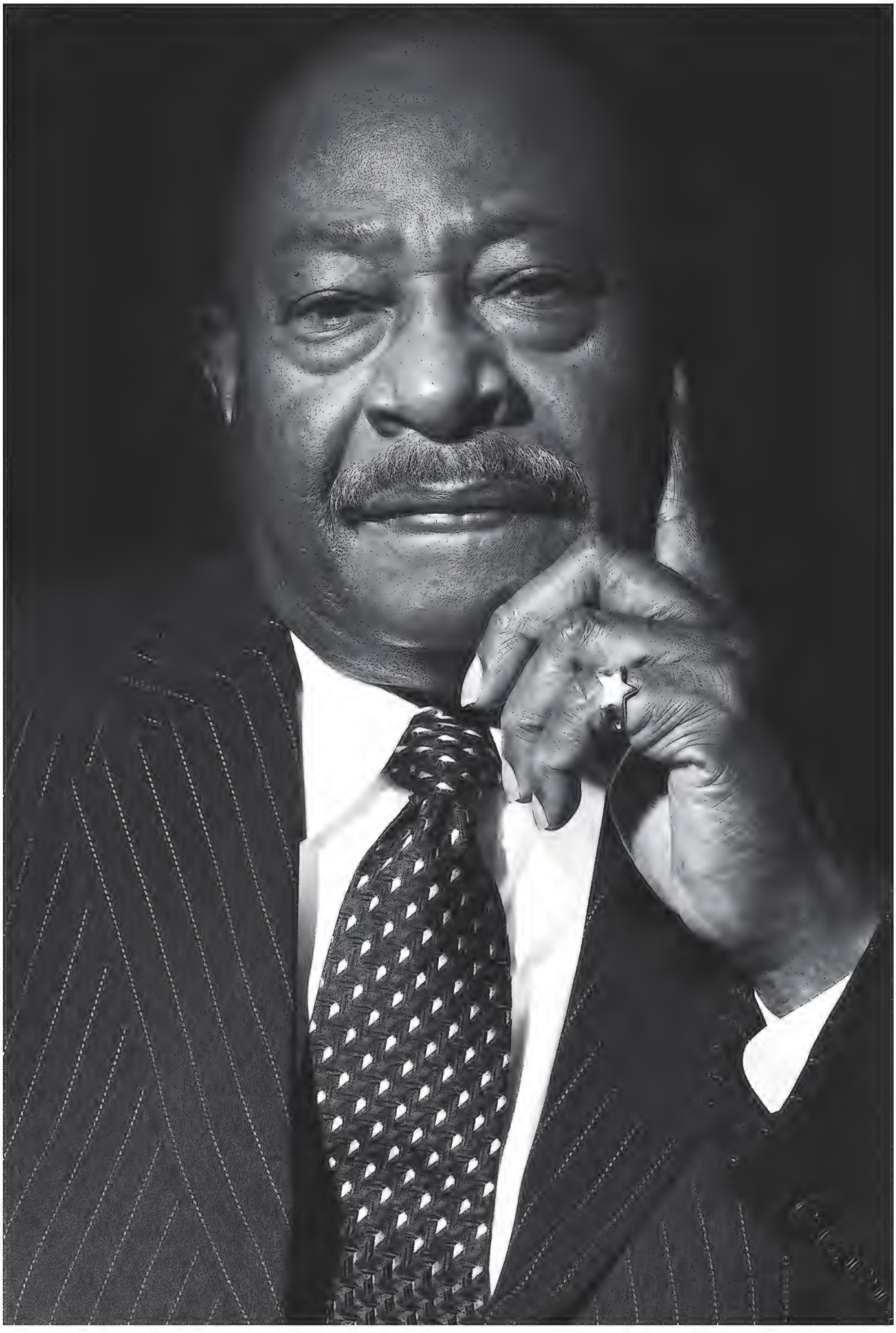
The bus passengers assaulted that day were Freedom Riders, among the first of more than 400 volunteers who traveled throughout the South on regularly scheduled buses for seven months in 1961 to test a 1960 Supreme Court decision that declared segregated facilities for interstate passengers illegal.

After news stories and photographs of the burning bus and bloody attacks sped around the country, many more people came forward to risk their lives and challenge the racial status quo. Now Eric Etheridge, a veteran magazine editor, provides a visceral tribute to those road warriors in *Breach of Peace: Portraits of the 1961 Mississippi Freedom Riders*. The book, a collection of Etheridge's recent portraits of 80 Freedom Riders juxtaposed with mug shots from their arrests in 1961, includes interviews with the activists reflecting on their experiences.

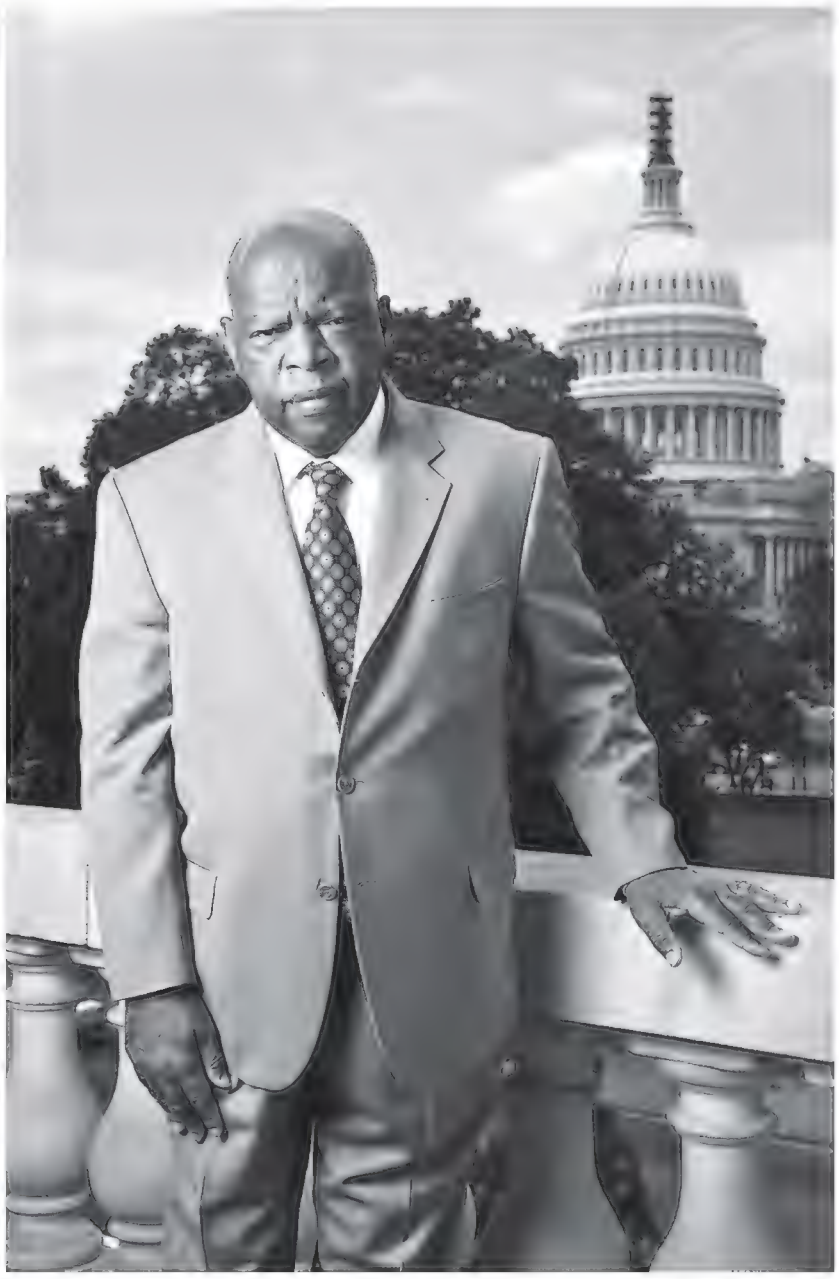


Etheridge, who grew up in Carthage, Mississippi, focuses on

BETTMANN / CORBIS; COURTESY OF THE MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY; P. 71 ERIC ETHERIDGE, TAKEN FROM *BREACH OF PEACE: PORTRAITS OF THE 1961 MISSISSIPPI FREEDOM RIDERS*, ATLAS & CO.



Miller Green, **of Chicago, spent 39 days in a Mississippi prison (opposite: his mug shot) after his arrest at a bus station: "We were jammed in like cattle, with no lights, no air, as punishment for singing and reading sermons."**



Despite the violence, **says Georgia Congressman John Lewis (top, being ushered into a police van in Jackson in May 1961, his head bandaged from an earlier attack), Freedom Riders "wanted to be a part of this effort to change America."**

Freedom Riders who boarded buses to Jackson, Mississippi, from late May to mid-September 1961. He was just 4 years old at the time and unaware of the seismic racial upheaval taking place around him. But he well remembers using one entrance to his doctor's office while African-Americans used another, and sitting in the orchestra of his local movie theater while blacks sat in the balcony.

"Looking back," Etheridge says, "I can identify with what the white South African photographer Jillian Edelstein has said: 'Growing up white in apartheid South Africa entitled one to massive and instant privilege.' "

A few years ago, Etheridge, who lives in New York City and has worked for *Rolling Stone* and *Harper's*, began looking for a project to engage his budding photographic skills. During a visit with his parents in Jackson in 2003, he was reminded that a lawsuit had forced the Mississippi State Sovereignty Commission, an agency created in 1956 to resist desegregation, to open its archives. The agency files, put online in 2002, included more than 300 arrest photographs of Freedom Riders."The police camera caught something special," Etheridge says, adding that the collection is "an amazing addition to the visual history of the civil rights movement." Unwittingly, the segregationist commission had created an indelible homage to the activist riders.

Nearly 75 percent of them were between 18 and 30 years old. About half were black; a quarter, women. Their mug-shot expressions hint at their resolve, defiance, pride, vulnerability and fear. "I was captivated by these images and wanted to bring them to a wider audience," Etheridge writes. "I wanted to find the riders today, to look into their faces and photograph them again." Using the Internet and information in the arrest files, he tracked riders down, then called them cold. "My best icebreaker was: 'I have your mug shot from 1961. Have you ever seen it?' Even people who are prone to be cautious were tickled to even think that it still existed."

Most of the riders were college students; many, such as the Episcopal clergymen and contingents of Yale divinity students, had religious affiliations. Some were active in civil rights groups like the Congress of Racial Equality (CORE), which initiated the Freedom Rides and was founded in 1942 on Mahatma Gandhi's principle of nonviolent protest. The goal of the rides, CORE director James Farmer said as he launched the campaign, was "to create a crisis so that the federal government would be compelled to enforce the law."

The volunteers, from 40 states, received training in nonviolence tactics. Those who could not refrain from striking back when pushed, hit, spit on or doused with liquids while racial epithets rang in their ears were rejected.

As soon as he heard the call for riders, Robert Singleton remembers, he "was fired up and ready to go." He and his

ERIC ETHERIDGE, FROM *BREACH OF PEACE: PORTRAITS OF THE 1961 MISSISSIPPI FREEDOM RIDERS*, ATLAS & CO.; BETTMANN / CORBIS; COURTESY OF THE MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY

Russell and Mary Jorgensen, **91 and 92, of Nevada City, California, were in their 40s when they volunteered. "I had been in jail enough not to feel threatened," says Mary, who had been arrested some 20 times at war and nuclear protests.**

COURTESY OF THE MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY; ERIC ETHERIDGE, FROM *BREACH OF PEACE: PORTRAITS OF THE 1961 MISSISSIPPI FREEDOM RIDERS*, ATLAS & CO.; COURTESY OF THE MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY

wife, Helen, had both been active in the National Association for the Advancement of Colored People and they took 12 volunteers with them from California. "The spirit that permeated the air at that time was not unlike the feeling Barack Obama has rekindled among the youth of today," says Singleton, now 73 and an economics professor at Loyola Marymount University in Los Angeles.

Peter Ackerberg, a lawyer who now lives in Minneapolis, said that while he'd always talked a "big radical game," he had never acted on his convictions. "What am I going to tell my children when they ask me about this time?" he recalled thinking. Boarding a bus in Montgomery, Alabama, "I was pretty scared," he told Etheridge. "The black guys and girls were singing. . . . They were so spirited and so unafraid. They were really prepared to risk their lives." Today, Ackerberg recalls acquiescing and saying "sir" to a jail official who was "pounding a blackjack." Soon after, "I could hear the blackjack strike [rider C.T. Vivian's] head and him shrieking; I don't think he ever said 'sir.'"

John Lewis, then 21 and already a veteran of sit-ins to desegregate lunch counters in Nashville, was the first Freedom Rider to be assaulted. While trying to enter a whites-only waiting room in Rock Hill, South Carolina, two men set upon him, battering his face and kicking him in the ribs. Less than two weeks later, he joined a ride bound for Jackson. "We were determined not to let any act of violence keep us from our goal," Lewis, a Georgia congressman since 1987 and a celebrated civil rights figure, said recently. "We knew our lives could be threatened, but we had made up our minds not to turn back."

As riders poured into the South, National Guardsmen were assigned to some buses to prevent violence. When activists arrived at the Jackson bus depot, police arrested blacks who refused to heed orders to stay out of white restrooms or vacate the white waiting room. And whites were arrested if they used "colored" facilities. Officials charged the riders with breach of peace, rather than breaking segregation laws. Freedom Riders responded with a strategy they called "jail, no bail"—a deliberate effort to clog the penal facilities. Most of the 300 riders in Jackson would endure six weeks in sweltering jail or prison cells rife with mice, insects, soiled mattresses and open toilets.

"The dehumanizing process started as soon as we got there," said Hank Thomas, a Marriott hotel franchise owner in Atlanta, who was then a sophomore at Howard University in Washington, D.C. "We were told to strip naked and

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MARIAN SMITH HOLMES *is an associate editor. Photographer* **ERIC ETHERIDGE** *maintains a Web site, breachofpeace.com, that publishes information about the Freedom Riders.*

"I can't stand **being silent about things I care about," says Joan Pleune, of New York City, who was arrested with her sister. First alarmed at their activism, their mother took pride in being introduced as the mother of Freedom Riders.**

then walked down this long corridor. . . . I'll never forget [CORE director] Jim Farmer, a very dignified man . . . walking down this long corridor naked . . . that is dehumanizing. And that was the whole point."

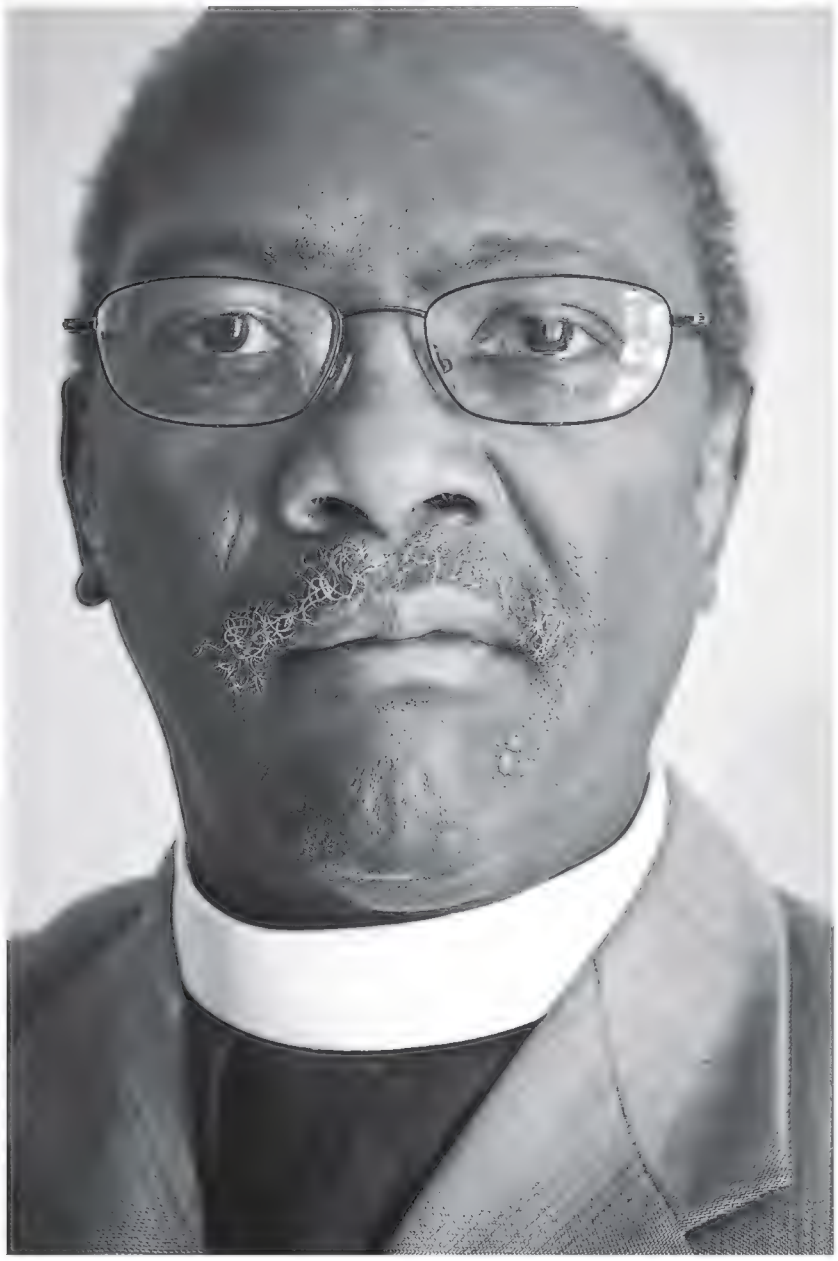
Jean Thompson, then a 19-year-old CORE worker, said she was one of the riders slapped by a penal official for failing to call him "sir." An FBI investigation into the incident concluded that "no one was beaten," she told Etheridge. "That said a lot to me about what actually happens in this country. It was eye-opening." When prisoners were transferred from one facility to another, unexplained stops on remote dirt roads or the sight of curious onlookers peering into the transport trucks heightened fears. "We imagined every horror including an ambush by the KKK," rider Carol Silver told Etheridge. To keep up their spirits, the prisoners sang freedom songs.

Confined in a **Jackson jail for ten days with inmates accused of prostitution and murder, Hellen O'Neal-McCray, of Yellow Springs, Ohio, was struck by their kindness: They "embraced me, taught me to play cards and sang freedom songs with me."**

None of the riders Etheridge spoke with expressed regrets, even though some would be entangled for years in legal appeals that went all the way to the Supreme Court (which issued a ruling in 1965 that led to a reversal of the breach of peace convictions). "It's the right thing to do, to oppose an oppressive state where wrongs are being done to people," said William Leons, a University of Toledo professor of anthropology whose father had been killed in an Austrian concentration camp and whose mother hid refugees during World War II. "I was aware very much of my parents' involvement in the Nazi resistance," he said of his 39-day incarceration as a rider. "[I was] doing what they would have done."

More than two dozen of the riders Etheridge interviewed went on to become teachers or professors, and there are eight ministers as well as lawyers, Peace Corps workers, journalists

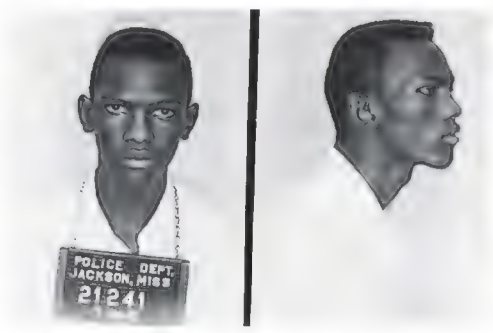
ERIC ETHERIDGE, FROM *BREACH OF PEACE: PORTRAITS OF THE 1961 MISSISSIPPI FREEDOM RIDERS*, ATLAS & CO. (2); COURTESY OF THE MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY (2)



"I was by myself **in the paddy wagon for a while," recalls the Rev. Alphonso Petway, of Mobile, Alabama, who was 16 when arrested at a "white" cafeteria: "That was a frightening moment. I had heard horror stories of people going missing."**

"If not now, when?" **Kredelle Petway, of Apollo Beach, Florida, reassured her younger brother (left) and father as they were driven to a Jackson jail in a police van. She would later be tear-gassed and water-hosed at protests in Florida.**

and politicians. Like Lewis, Bob Filner, of California, is a congressman. And few former Freedom Riders still practice civil disobedience. Joan Pleune, 70, of New York City, is a member of the Granny Peace Brigade; she was arrested two years ago at an anti-Iraq War protest in Washington, D.C. while "reading the names of the war dead," she says. Theresa Walker, 80, was arrested in New York City in 2000 during a protest over the police killing there the year before of Amadou Diallo, an unarmed immigrant from Guinea.



Though the Freedom Rides dramatically demonstrated that some Southern states were ignoring the U.S. Supreme Court's mandate to desegregate bus terminals, it would take a petition from U.S. Attorney General Robert Kennedy to spur the Interstate Commerce Commission (ICC) to issue tough new regulations, backed by fines up to $500, that would eventually end segregated bus facilities. Even after the order went into effect, on November 1, 1961, hard-core segregation persisted; still, the "white" and "colored" signs in bus stations across the South began to come down. The *New York Times*, which had earlier criticized the Freedom Riders' "incitement and provocation," acknowledged that they "started the chain of events which resulted in the new I.C.C. order."

The legacy of the rides "could not have been more poetic," says Robert Singleton, who connects those events to the election of Barack Obama as president. Obama was born in August 1961, Singleton notes, just when the riders were languishing in Mississippi jails and prisons, trying to "break the back of segregation for all people, but especially for the children. We put ourselves in harm's way for a child, at the very time he came into this world, who would become our first black president."

See more of the Freedom Riders at Smithsonian.com/freedomriders

ERIC ETHERIDGE, FROM *BREACH OF PEACE: PORTRAITS OF THE 1961 MISSISSIPPI FREEDOM RIDERS*, ATLAS & CO. (2); COURTESY OF THE MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY (2)

HOWLING

SUCCESS

WOLVES ARE FLOURISHING AGAIN IN THE NORTHERN ROCKIES. YET EVEN AS THEY'RE HELPING RESTORE THE BALANCE OF NATURE, THEY'RE ALSO KILLING LIVESTOCK—AND REIGNITING A FIERCE CONTROVERSY

BY FRANK CLIFFORD

ROGER LANG LOOKED AT TWO BLACK WOLVES LOOKING back at him. "I knew they wouldn't get them all," he said, steadying his binoculars on the steering wheel of his pickup truck. "Some of them were trapped. Some were shot from helicopters. They culled nine and actually thought they got the whole pack. But you can see they didn't."

Sloping down to the Madison River, Lang's 18,000-acre Sun Ranch in southwest Montana is an Old West tableau of rippling prairie, plunging streams, ghostly bands of elk, browsing cattle—and, at the moment, two wolves poised like sentinels on a knoll beneath the snowy peaks of the Madison Range. About 25 miles west of Yellowstone National Park, the ranch straddles a river valley that is part of an ancient migration corridor for elk, deer, antelope and grizzly bears that move seasonally in and out of Yellowstone's high country.

Lang has a close-up view of one of the most dramatic and contentious wildlife experiments in a century—the reintroduction of wolves to the northern Rocky Mountains, where they were wiped out long ago. Caught in Canada and flown to Yellowstone, 41 wolves were released in the area between 1995 and 1997, restoring the only missing member of the park's native mammals. Since then, wolves have begun migrating in and out of the park, their howls music to ears of wilderness lovers and as chilling as war whoops to many ranchers.

Wolves from Yellowstone were on Lang's property by the time he acquired it in 1998. A former Silicon Valley en-

Wiped out in Yellowstone by the 1940s, gray wolves were reintroduced in 1995. Their swift comeback (opposite: in the park) has thrilled advocates but also renewed the debate about hunting the animals.

trepreneur who amassed a fortune in the software business, he seeks to breach a gap between people—including many transplanted urbanites—who would grant wolves unconditional amnesty and others who would exterminate them. "Wolves were here before we were and deserve a place," said Lang. "But that doesn't mean some of them aren't going to die if they misbehave."

After wolves killed five of his cows, he consulted with federal wildlife officials, who pass sentence on incorrigible wolves. "The feds proposed taking out the whole pack and we acquiesced," he said.

As he peered again at the two surviving wolves, Lang's half-smile conveyed a mixture of alarm and relief. "They are remarkable animals."

MAP: GUILBERT GATES; WILLIAM CAMPBELL; PP. 76-77 D. ROBERT & LORRI FRANZ

REVERED AND REVILED, the wolf embodies society's conflicted relationship with nature. A bronze wolf guarded the shrine of Apollo at Delphi; a wolf stalks a child in Little Red Riding Hood. Plains Indians respected the wolf as a great hunter and as a guide to the spirit world; American settlers slaughtered more than a million wolves during the 1800s. Trappers killed wolves that raided their traplines and sold the pelts for a dollar apiece. Stockmen's associations offered bounties for dead wolves. The slaughter was abetted by an ancient antagonism. Even Teddy Roosevelt, the cowboy conservationist, called the wolf a "beast of waste and desolation" and hunted it mercilessly.

The federal government began subsidizing wolf extermination on federal lands in 1915, and the last known wolf den in Yellowstone—prior to the wolf's recent comeback—was destroyed in 1923. By the 1940s, the animals were extinct in the northern Rocky Mountains—shot,

About 1,500 wolves live in the northern Rockies (above). Roger Lang (below: on his Montana ranch) sees a place for them.

Returned in the mid-1990s (a captive wolf gains freedom), Yellowstone Park's wolves now number as many as 170.

JOEL SARTORE; JESS R. LEE

trapped or poisoned. (A few hundred remained in the United States, mostly in northern Minnesota, Wisconsin and Michigan.) Then, at the dawn of the modern conservation movement and "coinciding with the paving of America," says Thomas McNamee, author of the 1997 book *The Return of the Wolf to Yellowstone*, the wolf emerged as a symbol of the nation's vanishing wild heritage. It was among the first animals protected under the 1973 Endangered Species Act.

The idea of returning the gray wolf, *Canis lupus* (which can be gray, black or white), to Yellowstone goes back to the Nixon administration. Proponents have argued that the wolf was a keystone species whose presence would reinvigorate the natural order. Without it, they said, Yellowstone was incomplete, the West a bland facsimile of its old wild self. "We have a psychological need for something big and bad that represents wildness. Wolves fulfill that," said Jim Halfpenny, an ecologist and author who has been leading wildlife classes in the park for nearly 40 years. Western lawmakers resisted reintroduction at first but eventually agreed to the plan. A loophole in the wolves' endangered species status authorized U.S. wildlife officials to kill animals that preyed on livestock on federal land and permitted landowners to do the same on their property. The loophole did not apply to wolves in the park: they remained under the full protection of the Endangered Species Act, as did a small number of wolves that had begun moving on their own into northern Montana from Canada in the late 1970s.

Once loathed as a "beast of waste," the gray wolf (in Yellowstone) is beloved by some as a symbol of unadulterated nature.

About the same time wolves were finally released in Yellowstone, three dozen others were also reintroduced in Idaho's Frank Church Wilderness. Both groups reclaimed old haunts with unanticipated gusto. Some of the park wolves scaled a ten-foot-high chain-link enclosure around their acclimation pen, and then dug under the fence to let out the rest of the wolves. Two traveled 40 miles within a week of gaining their freedom.

During the first decade after reintroduction, the wolf populations soared. By 2007, an estimated 1,500 wolves inhabited the northern Rockies of the United States—many descended from released wolves, others from the Canadian immigrant packs—with about 170 in Yellowstone.

To many naturalists, the thriving wolf population was a hopeful sign that it was possible to restock wild country with long-lost native inhabitants. But as the wolves made themselves at home again, old adversaries in the ranching community sought broader license to kill them.

By the end of 2007, wolves had been implicated in the deaths of about 2,700 livestock in Montana, Idaho and Wyoming in the dozen years since their reintroduction. They were preying on sheep and cattle at a rate higher than government scientists had predicted. Still, the predation represented a small fraction of all livestock losses.

One environmental group, Defenders of Wildlife, which has been a strong advocate of wolf reintroduction, established a fund to compensate ranchers for cows, sheep and other animals killed by wolves. The group reports it has paid ranchers about $1 million. The compensation doesn't make up for all the losses ranchers cite, such as the lower prices fetched for thin, wolf-harried cattle or the cost of extra manpower and material to protect livestock from predators.

By 2003, many Westerners were insisting that wolves be subject to more lethal control, which would require the animals' removal from the endangered species list. They got their way in early 2008, when the Bush administration ceded responsibility for most of the Rocky Mountain wolves to state officials in Idaho, Montana and Wyoming. The states quickly adopted rules that

Wolves (stalking elk in Yellowstone) have helped balance ecosystems: fewer elk has led to more willows, beavers and bird habitat.

“WE HAVE A PSYCHOLOGICAL NEED FOR SOMETHING BIG AND BAD THAT REPRESENTS WILDNESS. WOLVES FULFILL THAT,” SAYS ECOLOGIST AND AUTHOR JIM HALFPENNY.

Hunters (above left: rancher and guide Martin Davis) say there's less game because of wolves. Nature lovers (center: Laurie Lyman) gather at Yellowstone to see the canines. Biologist Douglas Smith (right: with a sedated animal) is largely hopeful.

sanctioned wolf hunts and generally made it easier to kill the animals. Wolves within Yellowstone's boundaries along with those in northern Montana remained under federal protection.

In the first month of relaxed regulation, at least 37 wolves were killed across the three states. By the end of July, more than 100 were dead. Bumper stickers proclaimed "Wolves—Government Sponsored Terrorists." Politicians stirred the pot. Idaho Gov. C.L. "Butch" Otter was widely quoted saying "I'm prepared to bid for the first ticket [hunting license] to shoot a wolf myself." Gov. Dave Freudenthal of Wyoming questioned whether any wolf packs outside Yellowstone in his state "are even necessary."

"I'm kind of a tree hugger myself and I've never killed a wolf," said Jack Turnell, whose family has run the Pitchfork Ranch near Meeteetse, Wyoming, for most of the past century. "But the wolf people lied to me. They asked me would I resist having 100 wolves in Yellowstone. 'No,' I said, if I could stop them at the borders. Now, all of a sudden we have 1,500 wolves. One of 'em can kill 20 of

TOP: WILLIAM CAMPBELL (3); PP. 80-81 D. ROBERT & LORRI FRANZ

something in a year. You need to say they can't get into farm and ranch areas. You can't turn wolves loose like they were a bunch of balloons."

Wolves have nipped hard at the pocketbooks of people like Martin Davis of Paradise Valley, Montana, who guides elk hunters in the mountains north of Yellowstone National Park. As the wolves have feasted on the herds, there have been fewer elk for hunters to shoot. "Our hunting has really gone lousy," Davis said. "Our repeat clients are saying when they see less wolves and more elk, they'll come back."

But the Yellowstone wolves have attracted a passionate following. Surveys conducted by the National Park Service found that nearly 100,000 people come to the park each year from other states specifically to see wolves. Visitors have formed attachments to individual wolves, and certain ones seem to have had a knack for playing to the crowd. A park favorite was a lame but bold male, nicknamed Limpy. He was shot and killed outside the park last spring.

The shooting of Limpy and other wolves spurred conservationists to challenge the new state management

BOTTOM: JESS R. LEE (3)

Wolf packs, with 5 to 15 or more members, tend to grow when they seek large prey (below left: with bison in Yellowstone), usually in winter (center). Pups learn hunting from pack members (right: in the park), staying with a clan up to four years.

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plans. They singled out Wyoming's especially permissive approach to killing wolves. "It's antithetical to good wildlife management. It just allows an animal to be killed for the sake of killing it," said Hank Fischer, of Missoula, Montana, who helped establish the fund to reimburse ranchers who lost livestock to wolves.

Twelve environmental groups sued to return management of the wolves to the federal government, arguing that the Yellowstone wolf population would not be sustainable until members mated with wolves in Idaho or northern Montana. By allowing hundreds of wolves to be killed outside the park, the lawsuit claimed, populations would be cut off from one another, and inbreeding would eventually weaken them, making them more vulnerable to disease, drought and other perils.

The court largely agreed. "The reduction in the wolf population that will occur as a result of public wolf hunts and [predator] control laws in Idaho, Montana and Wyoming is more than likely to eliminate any

THE REINTRODUCED WOLVES APPEAR TO BE DOING THE JOB THEY WERE RECRUITED TO DO—PUT MORE TEETH IN THE NATURAL ORDER THAT HAD BEEN OUT OF WHACK SINCE THE WOLVES DISAPPEARED.

chance for genetic exchange to occur," U.S. District Court Judge Donald Molloy wrote in a ruling this past summer that effectively overturned the federal move to let the three states regulate wolf hunting. The ruling restored the wolf's status to what it was at reintroduction: only animals that take livestock may be killed.

Of all the people who supported easing the restrictions on wolf hunting, perhaps the most surprising was Douglas W. Smith, a biologist who heads

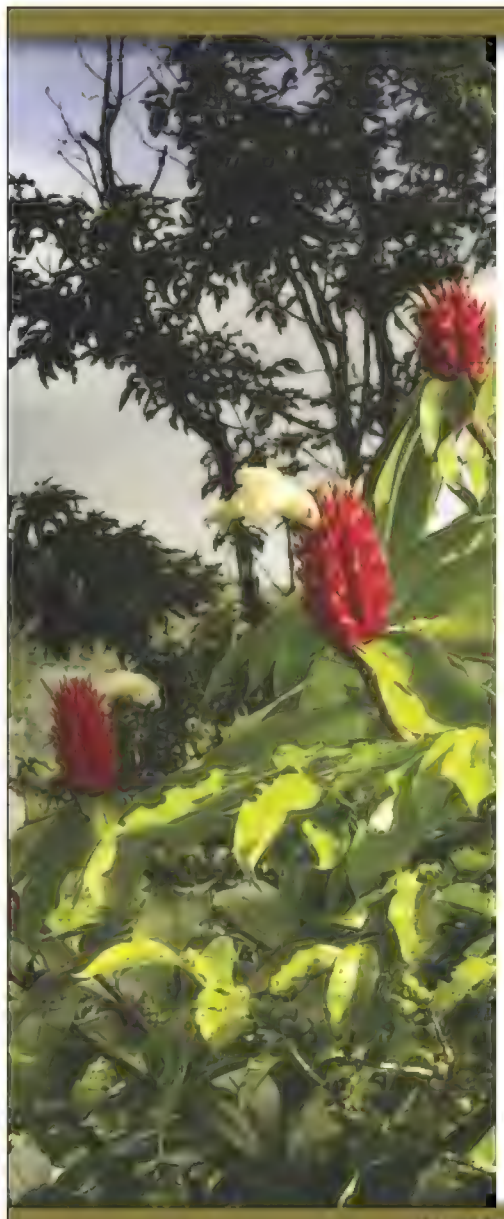
the Yellowstone Wolf Recovery Project and is the co-author of the 2005 book *Decade of the Wolf*. He helped carry the first wolves into the park in crates 14 years ago and has functioned as their head nanny ever since. But he also has sympathy for his ranching neighbors. "We covet what we've lost, and when you go out and see wolves free in nature, it's real," he said. "Most people are so many levels removed from wild nature that seeing wolves establishes a very powerful link. But ranchers already have a strong connection. They don't need wolves for that."

Smith agrees that Yellowstone's wolves need to mix with animals outside the park to strengthen their genetic stock. It's just that he doesn't think hunting or stricter predator control laws will prevent that. "I have faith in the wolves," he said during an interview in his office at Yellowstone National Park headquarters. "They will find each other."

If they are allowed to, that is. Even if the wolves continue to roam relatively more freely, their future survival would not be guaranteed in a part of the country where human development is quickly expanding into wildlife habitat.

FOR NOW, THE REINTRODUCED wolves appear to be doing the job they were recruited to do—put more teeth in the natural order that had been out of whack since the wolves disappeared in the early 20th century. By 2005, they were killing around 3,000 elk every year in Yellowstone, where outsized herds had been denuding the park's vegetation. Much of the elk predation took place in the Lamar Valley in the northeast quarter of the park, a stretch of open space that has been compared to East Africa's Serengeti Plain. For all its magnificence, it has been something of an unbalanced ecosystem, the absence of trees due in no small part to an overabundance of browsing elk.

With wolves back on the prowl, the elk became more restive. And as the elk spent less time foraging along stream banks, scientists have report-



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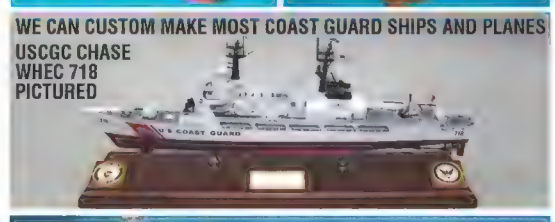

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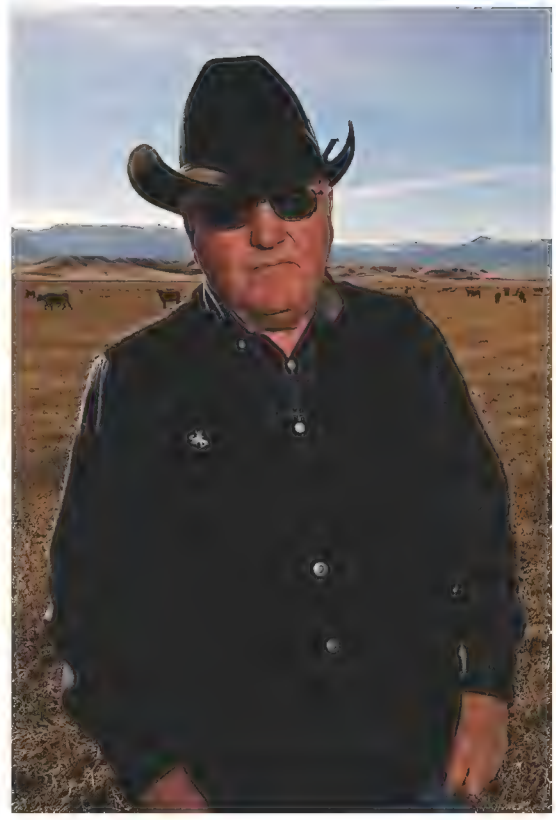

"You can't turn wolves loose like they were a bunch of balloons," says Jack Turnell (on his Wyoming ranch), a self-described "tree-hugger."

ed that willows and other plants that had been eaten to the nubs began to flourish again. So did some of the animals that depend on the trees, like beavers, which use willow branches to build lodges. Since the wolves were reintroduced, beaver colonies have increased eightfold. So there are more beaver ponds—habitat for insects, fish, amphibians, reptiles, birds and mammals, even moose, Smith says. Especially in winter, wolf kills have provided food for other park dwellers, including ravens, magpies and bald and golden eagles.

For human visitors to the park, one of the highlights of wildlife viewing in recent years has been watching the combat between wolves and grizzly bears, alternately fierce and comical, for control of elk carcasses. Wolf watching generates more than $35 million a year for motels, restaurants and other businesses in the three states surrounding the park, according to park surveys.

FRANK CLIFFORD *is the author of* The Backbone of the World: A Portrait of the Vanishing West Along the Continental Divide.

WILLIAM CAMPBELL

Hard-core wolf watchers arrive at first light, their cars filling roadside turnouts in the Lamar Valley. They erect a picket line of spotting scopes and point their lenses at den sites in the hillsides that frame the valley. Some of the regulars act as volunteer aides to the wolf recovery project, documenting the appearance of new pups, changes in den sites and interactions with other animals.

"Getting to know a wolf pack is like getting to know a family," said Laurie Lyman. Three years ago, she and her husband retired from teaching jobs in San Diego and moved to Silver Gate, Montana, just outside the park's northeast entrance and a 30-minute drive from the Lamar Valley. "Each wolf has its own individual temperament—the ones that nurture the pups, the males that feed the females. Everybody means something in the pack. Each wolf contributes. One of my goals is to get more people to look into the lives of wolves so they better understand the effect they have when they kill wolves."

A wolf pack has a familial makeup, typically consisting of parents and one or more generations of offspring. Slow to mature sexually, wolf pups stay with their parents up to four years, longer than many other mammals. In the process, the pups learn about hunting, foraging and working with other members of the pack.

The number of wolves in a pack varies with the size of their prey. Wolves that dine regularly on big animals—bison, elk or caribou—tend to operate in large packs of up to 15 members. In summer, packs are likely to split up, with individuals traveling 20 or more miles a day in pursuit of small prey such as squirrels and beaver. In winter, when snow slows down bigger animals, a wolf pack tends to work together, bringing down an elk every other day or so.

The constant combat takes a toll. In Yellowstone National Park, where only 2 percent of mortality is caused by humans—mostly by car accidents— the average life span of a wolf

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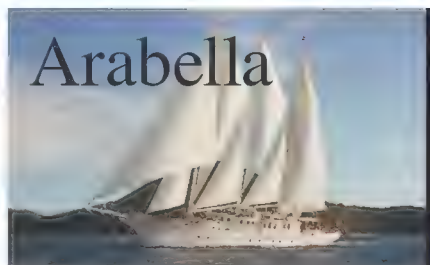

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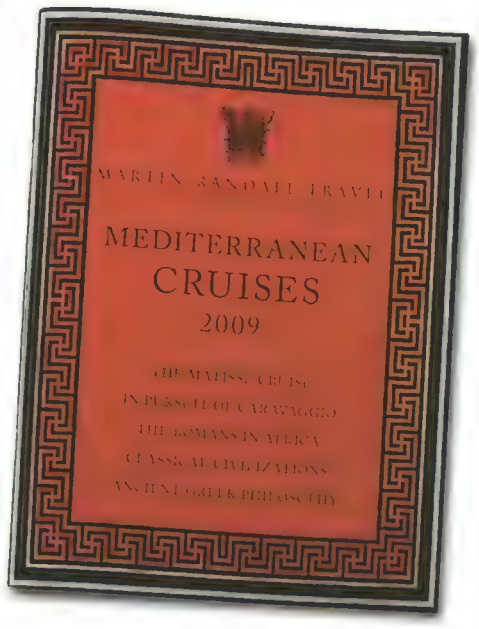

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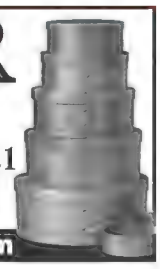

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is still only four to five years. (Wolves in captivity sometimes live into their teens.) When he examines wolves that have died in the park, Smith routinely finds smashed bones, teeth ground to useless stubs and scars from fights with rival packs, moose and bison. Disease has also exacted a heavy price. Two-thirds of the pups born in 2005 died from distemper, a viral infection that strikes the respiratory and central nervous systems.

Diminishing food sources alone are likely to limit the growth of the Yellowstone wolf population. Smith predicts that it will eventually stabilize at around 100 animals, about 40 percent smaller than its 2007 size. Today, half of Yellowstone's wolves live in and around the Lamar Valley, where the animals were first reintroduced. Recently, said Smith, wolves have begun killing each other in fights over elk carcasses, a sure sign that prey is getting scarcer. "We've not seen anything like that level of wolf on wolf mortality before."

Yellowstone may be the nation's best-known wildlife haven, but it's not a stable environment. Today, park ecologists are alarmed about the spread of nonnative plants, which have more than doubled in the past 20 years, possibly because of warming temperatures and a longer growing season. Some of the exotics, such as cheat grass and alyssum, a mustard, are shunned by wildlife and may crowd out natural vegetation that feed the elk, deer and bison that are staples of the wolves' diet.

FOR YELLOWSTONE'S WOLVES TO CONTINUE THRIVING, THE ANIMALS WILL NEED ACCESS TO CORRIDORS OF OPEN COUNTRY THAT ALLOW THEM TO BREED WITH THOSE ELSEWHERE IN IDAHO AND MONTANA.

Outside the two-million-acre park,

The National Park Service says 100,000 out-of-staters yearly go to Yellowstone to see wolves.

the landscape is also changing. Since 1970 the amount of open space around the park that has been used for new homes has grown by 350 percent, while the human population has increased by more than 60 percent.

For Yellowstone's wolves to continue thriving, Smith said, the animals will need access to corridors of open country that allow them to move west and north and ultimately breed with counterparts in Idaho and northern Montana. "If there's any animal that can move the necessary distance, it's a wolf, if we give them any sort of opportunity," he said.

One crucial corridor from Yellowstone to Idaho's Frank Church Wilderness, where reintroduced wolves continue to do well, follows creeks that run through Roger Lang's ranch in the Madison Valley and water meadows where his cattle graze. Today, the scattered signs of modern civilization in the valley are still dwarfed by the great green sweep of untrammeled countryside. But the beauty of the place can work against it. According to Lang, one-third of the valley is being developed, a third is protected and the rest is up for grabs.

This past fall, Lang established a conservation easement on the majority of his property. "Our intent is to preserve a wild corridor through this valley," Lang said.

JESS R. LEE

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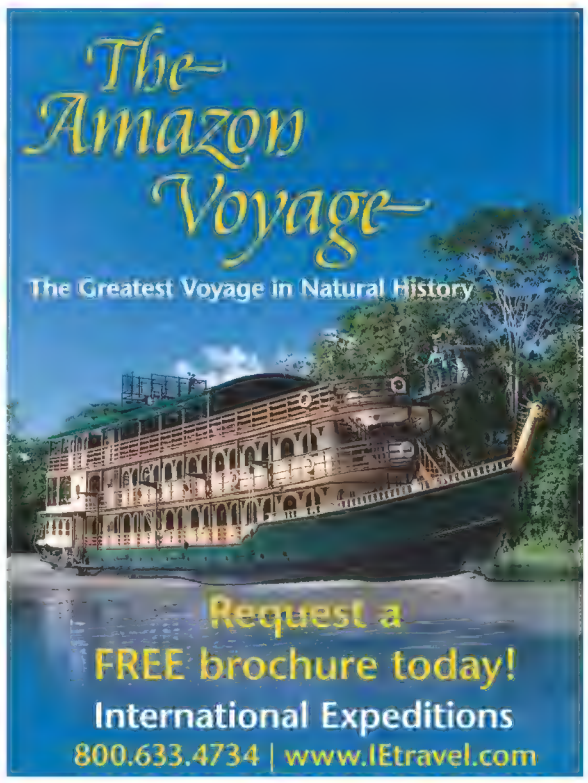

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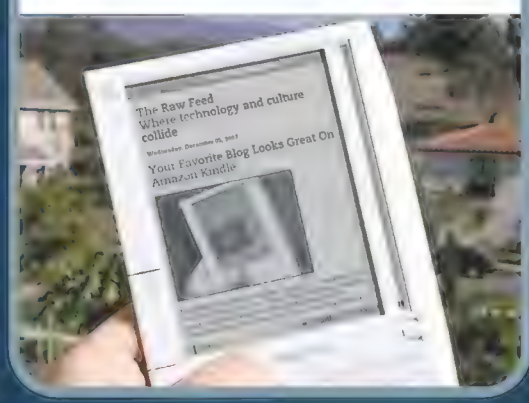

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"Each wolf has its own individual temperament," says Lyman, a wolf advocate and Yellowstone regular.

Lang has worked hard to coexist with wolves that have taken up residence on his ranch. He has used firecrackers and rubber bullets to keep wolves away from his cows. He has employed night riders to patrol fence lines. This past year he strung miles of fluttering pennants from wire fences. The practice, known as fladry, has been used by stockmen in Europe and Canada to deter wolves.

A few days after ranch hands attached Lang's flags, he found fresh wolf tracks directly underneath them.

Lang acknowledges that his ability to absorb some financial losses makes him more tolerant of wolves than some of his neighbors. At the same time, his willingness to kill problem wolves on occasion has antagonized local environmentalists. "The purpose is to find a balance," Lang said. "Preservation of the species is not the same as protecting every member."

Removed from the scientific challenges of working in Silicon Valley, he still thinks of himself as a problem solver. "Wolves have to be part of the equation. The trick is how to create a détente with them. We're just asking for everyone to be patient while we experiment with ways to make it happen."

JESS R. LEE

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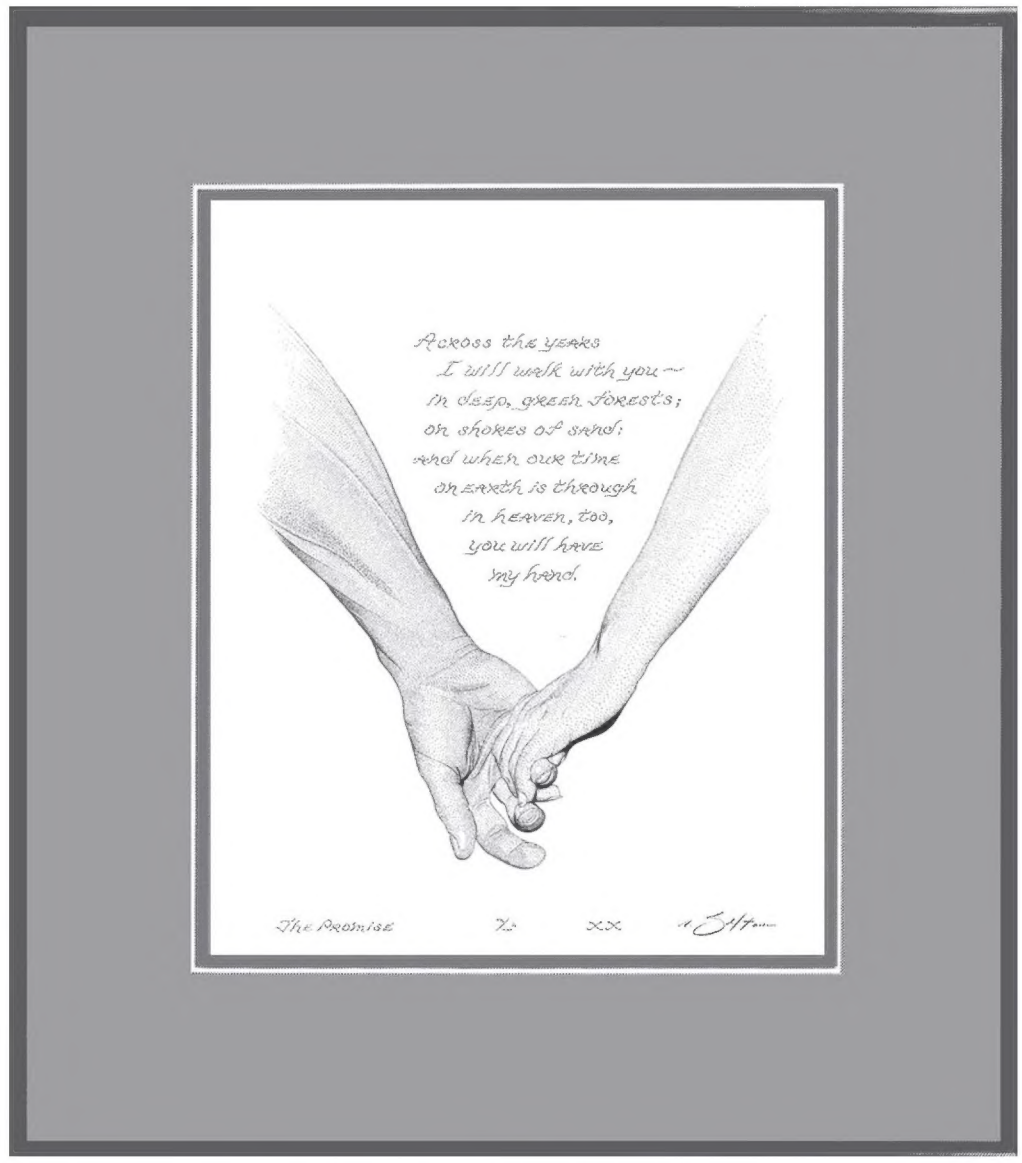
A Most Unusual Gift of Love



The poem reads: *"Across the years I will walk with you -*
in deep green forests; on shores of sand:
and when our time on earth is through,
in heaven, too, you will have my hand."

Dear Reader,

The drawing you see above is called "The Promise." It is completely composed of dots of ink. After writing the poem, I worked with a quill pen and placed thousands of these dots, one at a time, to create this gift in honor of my youngest brother and his wife.

Now, I have decided to offer "The Promise" to those who share and value its sentiment. Each litho is numbered and signed by hand and precisely captures the detail of the drawing. As a wedding, anniversary or Christmas gift or simply as a standard for your own home, I believe you will find it most appropriate.

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Scientists studying the universe have concluded that its basic properties are uncannily suited for life. They say, "There are so many life friendly properties that physicists cannot dismiss them as mere accidents. Tweak the laws of physics in just about any way—in this universe anyway—and life as we know it would not exist—nor would we."

Richard W. Wetherill
1906-1989

After reading that paragraph, ask yourself how are people treating our amazingly fine-tuned habitat? Answers might vary, but most would agree that it is often misused to serve human purposes.

This essay intends to draw people's attention to their nonconformance to a little- known law of nature, causing them untold physical, mental, and/or emotional misery as well as any disregard for the safety of planet Earth.

Early in the past century Richard W. Wetherill identified that natural law and presented it in a book entitled, *Tower of Babel*, published and on sale in January 1952. Its correction technique was copied by psychologists in the Philadelphia area, but the book's reference to a natural law of behavior was ignored.

Wetherill's epiphanies and a study of his behavior and that of many thousand others had revealed people's wrong attitude toward the realities of life. After eons of human efforts to quiet turbulent human affairs, they still cry out for solutions.

If we reason from the fact that this planet is the only place in the universe that supports life as we know it, Wetherill suggests the following:

Whoever or whatever created this perfectly constructed planet also created a law governing its inhabitant's behavior. Wetherill called it the ***law of absolute right: Right action gets right results***. It defines right as what is truly logical, rational, and honest. As with creation's laws of physics, only by conforming to this behavioral law do people solve their problems and avoid further trouble.

It is well known that not conforming to natural laws results in trouble of one kind or another. By failing to take right action, people unwarily invite myriad problems and trouble that, sooner or later, cause each person's death. No argument here; death is what has been happening from the beginning of human life to the present generation.

No claims are being made. We are presenting facts that can be verified by anybody observing the cause-and-effect sequence of human existence.

We think that this perfectly constructed universe calls for perfectly behaving occupants and that that result can be achieved when enough persons do their best to conform to nature's behavioral law mentioned earlier.

Wetherill often spoke of the need for a microcosm of a rational society to display right results for others to observe. The adult population of the United States of America could be that microcosm in our world population of over seven billion. Don't hesitate! The persons who are conforming to nature's law of behavior are enjoying the right results that the law promises.

No instructions were given ancient peoples regarding a law of gravitation, but they learned to conform to it to stay out of trouble with the force of gravity. Please regard this public-service message as a wake-up call for readers to adapt their behavior to conform to nature's law of absolute right. Be assured, people's truly rational, honest behavior extends the beneficent intent of whoever or whatever created this life-friendly universe and us.

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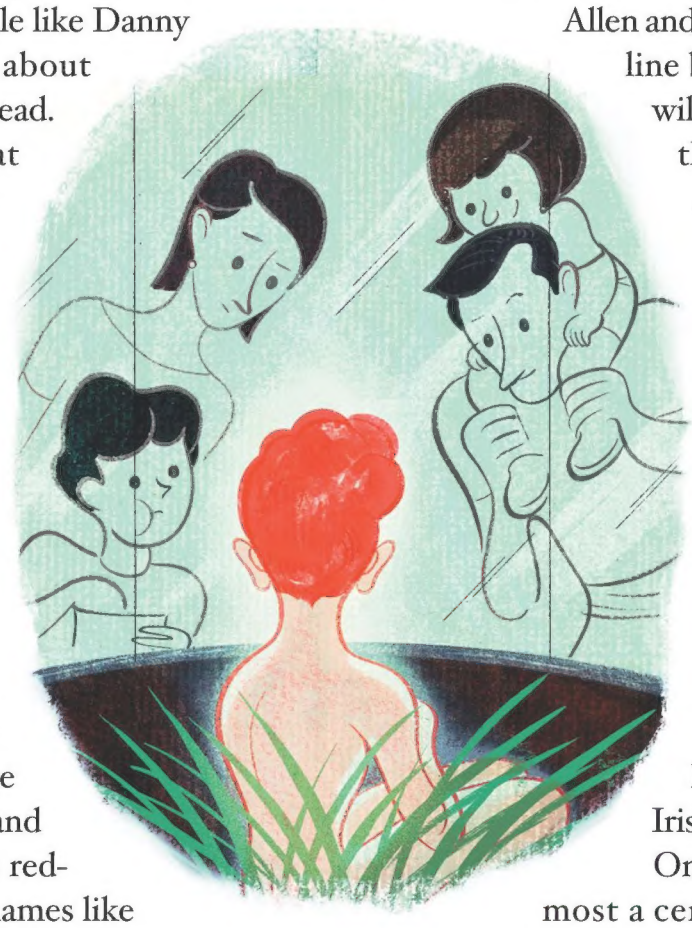
Requiem for the Redhead

The next great extinction—Carrot Tops **BY PATRICIA McNAMEE ROSENBERG**

NOT LONG AGO, newspapers and magazines reported that, by the end of the century, redheads, of whom I am one, will be extinct. Gone. Kaput. Since then, other scientists have raised doubts about the great redhead extinction theory, especially since the research was conducted by the Oxford Hair Foundation—which is funded by Procter & Gamble, which manufactures hair dye. Still, who can say for sure who is right? I'm sure that, back in their day, the dinosaurs were pretty smug too.

Where will we be without people like Danny Bonaduce? Bad example. How about Dwight Eisenhower? Ike was a redhead. (He was younger then.) And what other group could we taunt without fear of retribution? "Hey matchstick head," "I'd rather be dead than red" and "Where did you get that hair?" are just some of the cute comments we get to hear on a daily basis. So if we want little Ron Howards or Lindsay Lohans in the 22nd century, we have to plan ahead.



A common myth has it that redheads have hot tempers. (That one really infuriates me.) Many people believe red-haired women are wild between the sheets. (My husband is not one of them.) Others believe redheads should answer to witty nicknames like "Red," "Carrot Top" and "Peppermint Patty" (mine). In some societies, the term "redhead" is synonymous with hard-headedness, even being mentally challenged. And all this is considered politically correct.

The world will be frightfully ordinary without redheads. Try to picture the year 2150. Everyone will have dark brown hair, brown eyes and faces bereft of orange freckles. Action figures and dolls will be dark-haired, pretty and handsome, but Raggedy Ann will have fallen by the wayside. Redheaded clowns will have all gotten into their tiny cars and driven away, never to return.

Oh, there will be museums featuring redheads of the past. Like the Neanderthal, *Hominis redheadis* will be a fascinating curiosity. Conspiracy theorists will insist that an entire population was banished to a faraway island, where they step-danced to oblivion. There will be stories about famous redheads: Vincent van Gogh, William Shakespeare, Woody Allen and Lucille Ball, thus illustrating the fine line between genius and insanity. There will be parties at which revelers dress as their favorite redhead: Little Orphan Annie, Woody Woodpecker, Elmo.

How did we get to this sorry state? The redhead sprang from a mutated gene in Europe thousands of years ago. Yes, redheads are mutants, like comic book heroes—except without superpowers. Maybe that's why nobody has proposed a plan to save the redhead. We don't even count as an endangered species. If redheads were as adorable as pandas, scientists would select a male and female and house them in a habitat, such as an Irish pub, that would encourage mating.

On the bright side, the redhead has almost a century left to make its mark in the world and become a legend that will live forever. And I, for one, see a time when people will speak in whispered tones of the days when redheads roamed the earth.

PATRICIA McNAMEE ROSENBERG *lives in Oak Park, Illinois. Thanks to the wonders of chemistry, she is still a redhead.*

ERIC PALMA